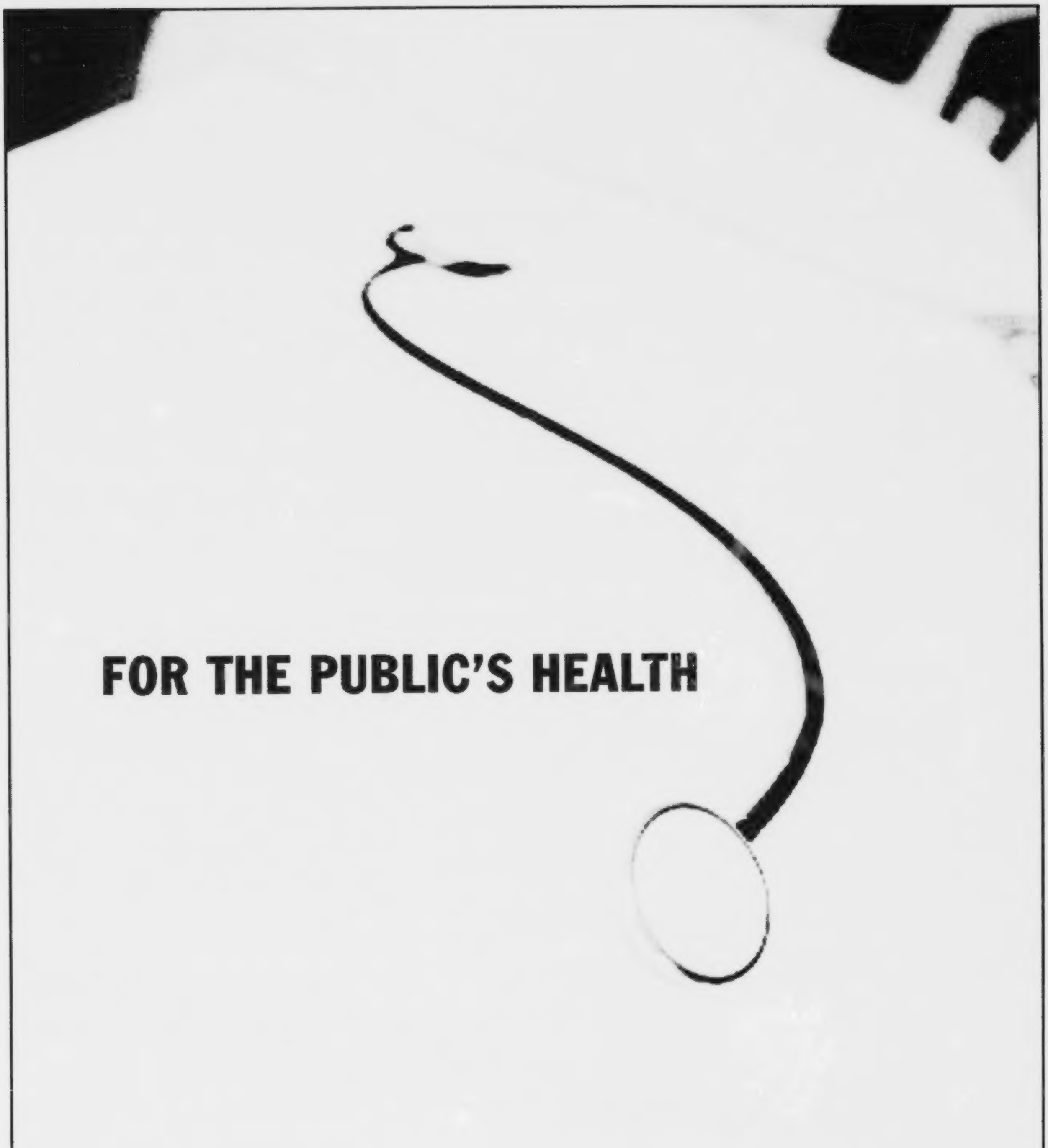

FOR THE PUBLIC'S HEALTH

Initial Report of the Ontario Expert Panel on SARS and Infectious Disease Control

December 2003

This Report is dedicated to those who lost their lives or a loved one as a result of SARS, and to the healthcare providers who valiantly dealt with the disease on a daily basis.

Members of the Expert Panel on SARS and Infectious Disease Control

The members of the Expert Panel on SARS and Infectious Disease Control are:

- Dr. David Walker, Dean of Health Sciences and Director School of Medicine, Queen's University (Chair)
- Dr. Wilbert Keon, Chief Executive Officer, University of Ottawa Heart Institute
- Dr. Andreas Laupacis, President and Chief Executive Officer, Institute for Clinical Evaluative Sciences, Toronto
- Dr. Donald Low, Chief of Microbiology, Mount Sinai Hospital, Toronto
- Dr. Kieran Moore, Emergency Room Physician, Sudbury Regional Hospital
- Dr. Jack Kitts, President and Chief Executive Officer, The Ottawa Hospital
- Ms. Leslie Vincent, Senior Vice President Nursing, Mount Sinai Hospital, Toronto
- Dr. Robin Williams, Medical Officer of Health, Niagara Region

The following people provided input and advice to the formal Panel members on an ex-officio basis:

- Dr. David Naylor, Dean of Medicine, University of Toronto
- Dr. Sheela Basrur, Medical Officer of Health, City of Toronto
- Dr. Jim Young, Ontario Commissioner of Public Safety and Security
- Dr. Colin D'Cunha, Ontario Commissioner of Public Health, Chief Medical Officer, Assistant Deputy Minister of Health and Long-Term Care
- Dr. Dick Zoutman, Chief of Medical Microbiology and Infection Control, Kingston General Hospital, Chair Ontario SARS Scientific Advisory Committee
- Dr. Hanif Kassam, Associate Medical Officer of Health, York Region

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Executive Summary and Recommendations

Executive Summary

> *In March I arrive for work to a changed world. I endure my first screening, fill out forms, wait in line, have my temperature checked and am chastised for not having my ID with me. Bewildered, I make my way through the emerg staff entrance and encounter the re-designation of the area to a "clean zone" where I don the now requisite gowns, gloves, masks and goggles.*
>
> ...
>
> *Our workplace becomes a "level 3" facility and is transformed into what looks like the set of a science fiction movie. I am ordered into quarantine and feel as though such a restriction could apply only to some plague-threatened inhabitant of the Middle Ages. I venture out just to travel to work. Our emerg shuts down, but our ill colleagues stream in. The hospital has the feel of a ghost town – I see nurses and physicians cry.*
>
> ...
>
> *While my experience pales in comparison to the anguish of those who have been stricken with SARS and of those who have lost the people they loved most in the world, I am nonetheless one of many whose personal and professional lives are irrevocably and permanently changed. Understanding the scope of those changes and grasping the extent of the personal impact will remain a work in progress for some time to come.*[1]

For all those who contracted SARS, those forced into quarantine and their families and friends, as well as the patients and healthcare workers who experienced challenges first hand, the SARS outbreak represented a frightening and immensely stressful period. For Ontario, SARS was a public health emergency without precedent. Those within the healthcare system responded heroically, often jeopardizing their personal safety to care for others. Time and time again, frontline healthcare providers demonstrated their extraordinary commitment to providing high-quality care to patients, families and colleagues.

While recognizing the tremendous efforts made by all the people involved, it is clear that SARS exposed a general lack of preparedness for managing health emergencies and presents an open door for positive change. Ontario is far from alone in attempting to learn lessons from SARS; many jurisdictions including Hong Kong, Singapore, and the United States have also undertaken their own studies.[2] The Panel trusts that this Report, together with our final report, will contain valuable insights that may be of use both to Ontarians and to those beyond our province.

In moving forward to begin to build a better system for the future, we need to remember and honour these incredible and inspiring examples of courage and dedication. We believe that our Panel has tried to do that.

The Expert Panel on SARS and Infectious Disease Control was established by the Minister of Health and Long-Term Care in May 2003. We were asked to identify the key lessons learned from this experience and to provide practical, focused, and forward-looking recommendations regarding the management and control of infectious diseases and the capacity of Ontario to handle public health emergencies in the future.

The Panel approached its work by viewing SARS not simply as an isolated disease requiring a single set of interventions, but rather as a warning that vividly illustrated the strengths and weaknesses in our healthcare system and demonstrated what needs to be in place in order to deal with the next health emergency of this or greater magnitude.

The content of this Report has been informed by submissions from and interviews with various frontline healthcare providers and experts from facilities and organizations across the province. These inputs were of invaluable assistance to our work and we thank those many individuals who took the time to share their thoughts with us.

Furthermore, we attempted to ensure consistency with the overall conceptual framework for revitalizing public health in Canada set out in the Report of the National Advisory Committee on SARS and Public Health, *Learning from SARS: Renewal of Public Health in Canada*.

This Report constitutes the first phase of the Panel's work; it focuses on the systemic and policy challenges raised by SARS and prioritizes the areas that require short-, medium- and long-term actions. The Report also produces realistic and achievable recommendations that highlight the areas where action is required on an urgent basis. The Panel believes that provincial and federal efforts to improve public health and emergency preparedness must be coordinated and complementary. Specifically, an overarching recommendation is that Ontario play an active role in ensuring that concrete progress is made to rejuvenate public health at the provincial and federal levels consistent with the National Advisory Committee Report.

This first Report covers six key areas – Public Health Models; Infection Control; Emergency Preparedness; Communications; Surveillance; and Health Human Resources. Highlights of the Panel's key findings and recommendations in each of these areas are set out below.

Public Health Models

In the aftermath of the SARS outbreak, the need for a comprehensive review of Public Health in Ontario became clear. We heard that there are numerous challenges: a lack of human resources, inadequate and outdated organizational structures, and insufficient capacity or critical mass to respond effectively to major health emergencies.

To address the human resource issues, the Panel is convinced of the need to embark on a comprehensive public health human resource revitalization strategy. This strategy should include an increased capacity for education and training, campaigns to promote public health careers, and a review of current recruitment and retention strategies for Medical Officers of Health and their staff.

Equally important is the need to remedy the apparent structural and organizational problems. In this regard, the Panel endorses the establishment of a Health Protection and Promotion Agency in Ontario, which would report annually to the legislature and have responsibility for the Ontario Public Health Laboratory, existing provincial public health resources, and a new Division of Infection Control. In addition, we believe there needs to be urgent legislative amendment to provide clear authorization for the Chief Medical Officer of Health to report directly to the legislature.

Further, the large number of Public Health Units in Ontario does not always allow for a critical mass to support comprehensive expertise and capacity on a regional basis. The Panel therefore supports consolidating the number of Public Health Units on a regional basis within two years. In addition, an external review is needed to evaluate the capacity of the provincial Public Health Division, in relation to such things as staffing, information technology, epidemiological analysis, authority and overall centralized capacity to manage future outbreaks.

The Panel has been made aware of the issues surrounding the municipal role in funding of Public Health in Ontario. We therefore urge the restructuring of the present municipal-provincial cost-sharing agreement so the province funds 75% to 100% of public health resources within two to five years. In the short-term, full provincial funding of the 180 staff positions committed to Public Health Units as part of the Ontario SARS Short Term Action Plan must continue beyond March 31, 2004.

Finally, we believe that a mechanism to measure progress with respect to public health renewal in Ontario, and thereby to ensure accountability, is required. We recommend that an independently prepared annual performance report be established and provided to both the legislature and the public.

The Panel proposal to strengthen the monitoring and enforcement of the *Mandatory Health Programs and Services Guidelines* is also, we believe, consistent with the direction taken in the most recent Provincial Auditor's report.[3]

Infection Control

In recent years, too little attention has been paid to infection control. SARS highlighted to the Panel key shortfalls in areas such as infection control standards, human resources, facility design, and infection control training. The Panel also heard that there is a need for regional infection control expertise; this could be accomplished through the establishment of Regional Infection Control Networks with membership drawn from hospitals, long-term care facilities, community healthcare providers, and Public Health Units. Healthcare providers informed us that the absence of consistent, broadly applicable and enforceable standards for infection control practices and facility design was a major impediment to effectively containing infection. The Panel has therefore recommended establishing a standing Provincial Infection Control Committee to supervise infection control audits, and to develop standards as well as mechanisms to ensure compliance.

It is also very clear that there is an acute shortage of infection control practitioners and physicians. This is partly due to a lack of educational programs to properly train and certify infection control practitioners, as well as other specialists in infection control. Students in healthcare programs may not be consistently receiving core training in infection control. Moreover, there is a clear need for tailored infection control training for all workers across every sector of the healthcare system. The Panel recommends a series of measures to build infection control knowledge and skills among all healthcare workers. This could include 'train the trainer' initiatives in order to: facilitate accessible infection control training for all healthcare workers; expand programs to train infection control practitioners as part of their eligibility for certification; establish standards for infection control education; and include infection control as a core curricular element for health-related educational programs at colleges and universities. The Panel further recommends that targeted funding be established for infection control programs in Ontario.

Emergency Preparedness

SARS tested Ontario's preparedness for a health emergency – and it was found to be lacking. The Panel heard that there was no plan for the health system to respond to a communicable disease emergency in a coordinated manner. This resulted in unclear roles and responsibilities, including lines of authority, communication, and reporting relationships among different levels of government. The Panel also learned that there was no comprehensive emergency preparedness planning for hospitals and non-acute facilities on a regional basis. In addition, 'Code Orange' and hospital visitor policies enacted during SARS were not without significant problems.

Another major problem highlighted during SARS is the lack of surge capacity in Ontario's healthcare system, in relation to bed capacity, health human resources, and the supply of personal protective equipment.

As an immediate measure, Ontario's current state of health emergency preparedness in the following areas should be reviewed and assessed: patient transfer; rapid hospital discharge; the CritiCall program; and, the capacity to obtain and distribute supplies.

To facilitate an effective response to any future health emergency, the Panel recommends creating an Office of Health Emergency Preparedness (OHEP) within the Ministry. OHEP would have formal linkages to the Ministry of Community Safety and Correctional Services, and liaise with Emergency Management Ontario. The Panel also recommends an immediate review of existing emergency powers and related legislation, with the goal of establishing a graduated and nationally harmonized response system for health emergencies

Finally, the Ministry should support the creation of additional mechanisms to rapidly deploy healthcare personnel during an emergency and support the development of a new hospital code for infectious disease outbreaks.

Communications

During the SARS outbreak, both the public and healthcare providers needed credible, clear, and timely information. However, providing this information was hampered by the fact that SARS was a disease about which little was known. That said, it became apparent to the Panel that this difficult situation was worsened by the following: there was no clear public health risk communications strategy in place even though there was a provincial crisis communications strategy pre-existing SARS; there were no direct lines of contact to healthcare providers; and there was a need to respond to diverse healthcare groups in a clear manner according to their respective needs. The directives issued from the Provincial Operations Centre, later the SARS Operations Centre, have received considerable comment, with the primary concerns focused on the frequent changes made to the directives and the lack of a comprehensive system for feedback and clarification. There were also significant deficiencies in technical aspects of the province's communications infrastructure, notably the inability to reach many community-based healthcare providers and to allow for two-way communications. These deficiencies further complicated the interpretation and implementation of the directives, and prevented the timely sharing of information.

The Panel believes that a critical building block to ensure effective communication during a health emergency is the development of a technologically advanced infrastructure that reaches all key healthcare stakeholders and practitioners in a timely fashion. This should allow for two-way communications through multiple modalities. Also, the province needs a public health risk communications strategy, which includes risk communications protocols providing information that is clear, concise, credible, accessible, and easy to implement. Furthermore, the Ministry should develop an awareness plan to educate the public concerning public health and infection control. The Panel also recognizes the importance of liaising with Health Canada to ensure consistent messages, clearly designated points of contact during a crisis, and alignment of roles and responsibilities.

Surveillance

The Panel learned that efforts to contain SARS were impeded by the absence of a comprehensive provincial infectious disease surveillance plan. This was further complicated by the lack of a suitable information technology infrastructure to support such a plan, in relation to both gathering and disseminating information. Furthermore, RDIS, (the Reportable Diseases Information System), the information system provincially mandated for use by all health units, was functionally incapable of supporting timely outbreak investigation. The surveillance instrument currently being used by Public Health Units, does not provide for real-time collection of information. In addition, the Panel strongly recommends remedying the perceived barriers to the sharing of information that existed during SARS.

The Panel believes that these are serious deficiencies warranting immediate attention. A comprehensive provincial surveillance plan must be developed as a first priority, and efforts must be made to ensure that an appropriate information technology infrastructure is in place to support this plan. In addition, the Integrated Public Health Information System (iPHIS) must be implemented across all Public Health Units on an expedited basis, together with the necessary information technology supports to allow effective contact tracing and quarantine management by public health officials. Data access and data sharing protocols, as well as relevant privacy legislation, must also be reviewed on an urgent basis and amended as necessary to facilitate these public health goals.

Health Human Resources

The Panel heard about the already apparent shortage of healthcare professionals, particularly those critical to combating infectious disease outbreaks such as critical care and emergency nurses, infectious disease physicians, microbiologists, epidemiologists, public health physicians and nurses, infection control practitioners, occupational health and safety staff, and respiratory therapists. Alongside these general shortages, it became apparent during SARS that the skills of some existing professionals are not used optimally. Similarly, the availability of full-time employment for many healthcare workers is clearly inadequate, and the Panel believes that existing rates of casual, part-time, and agency employment are undermining efforts to ensure a stable and cohesive work place. The Panel learned that the profile of occupational health and safety in healthcare workplaces is far too low, and that the role of occupational health and safety during an infectious disease outbreak is unclear. The proper use, efficacy, and availability of personal protective equipment became a prominent issue across most healthcare sectors. Finally, the immense personal stress experienced during SARS demands a review of the mechanisms to provide accessible, confidential, and broadly available psychological and social support to both workers and their families.

The Panel supports ongoing efforts to increase enrollment in key health professions. As well, we believe that at least 70% of hospital healthcare worker positions should be full-time. In the interim, further methods to efficiently use existing healthcare workers during an emergency must be developed. As an immediate step, we recommend hiring two Medical Microbiologists for the Ontario Public Health Laboratory.

The Panel also believes that current practices in occupational health and safety need to be reviewed and recommends developing best practices identified and broadly disseminated, particularly with respect to the interface between occupational health and infection control. In addition, evidence-based best practices concerning the use of personal protective equipment should be developed and broadly disseminated. Finally, as part of contingency planning for health emergencies, we should put in place programs to compensate healthcare workers for lost income and to ensure the rapid provision of psycho-educational and psychological support.

Implementation

The Panel recognizes that there is a need for its work to be consistent and to integrate with that of the work of Dr. David Naylor and the National Advisory Committee on SARS and Public Health. In addition, a single, effective mechanism to coordinate and facilitate implementation of the recommendations contained within this Report is required. The Panel therefore recommends that a single body be established to oversee the implementation process, with its work aided by a multi-disciplinary Expert Advisory Group. The Panel also urges the Minister of Health and Long-Term Care to table a progress report regarding the implementation of the recommendations no later than December 2004.

Looking to the Final Report

The Panel will continue to examine the above-mentioned issues in more detail in the next few weeks and will report back to the Minister with additional recommendations in February 2004. Significantly, we will provide recommendations on how an Ontario Health Protection and Promotion Agency might best fit into a comprehensive national public health framework.

Over the coming weeks, this next phase of work will be informed by further discussions with healthcare providers and a series of independent research projects currently underway. We also expect to benefit from discussions and debates in other forums about the future national framework for public health.

In moving forward to build a better system for the future, we need to remember and honour the inspiring examples of courage and dedication during SARS. The Panel therefore strenuously advocates that Ontario have the courage and passion to be at the forefront of crafting a new vision and structure for public health, for this province and for all of Canada. Our vision is that Ontario's actions to strengthen the capacity to prevent and respond to infectious diseases become a pillar for the national public health renewal process.

Recommendations

Chapter One: Public Health Models

Health Protection and Promotion Agency

1. The Ministry should immediately proceed with developmental work to establish a Health Protection and Promotion Agency in Ontario. The Agency should be required to report annually to the legislature through the Chief Medical Officer of Health and include the following core components:

   a. The Ontario Public Health Laboratory.
   b. Relevant existing Public Health provincial resources.
   c. A Division of Infection Control, whose mandate would include research, training, monitoring and best practice dissemination.

   The Agency should also be designed to enable linkages with the proposed Canadian Public Health Agency, the proposed National Public Health Laboratory Network, and appropriate research centres.

Independence

2. The Ministry should immediately amend the *Health Protection and Promotion Act* to provide clear authorization to the Chief Medical Officer of Health to:

   a. report to the legislature
   b. issue public comment on matters of significant public health importance independently of the Minister of Health and Long-Term Care.

   Such a provision should be enacted at the earliest possible opportunity.

Public Health Human Resource Revitalization Strategy

3. It is recommended that Ontario immediately initiate discussions with the Association of Local Public Health Agencies (alPHa), Association of Municipalities of Ontario (AMO), and existing F/P/T processes, to design a Public Health Human Resource revitalization strategy. The strategy should contain the following components:

   a. The development, through the Ministry of Health and Long-Term Care and the Ministry of Training, Colleges and Universities, of an increased capacity for the education and training of public health professionals. This could include increasing enrollment numbers at educational institutions as well as increasing post-graduate training positions or residencies.

b. The development and support of a provincially funded training and education program for existing public health staff, with a focus on infection control. This should build upon the existing Public Health Research, Education and Development (PHRED) program. Special emphasis should be placed on promoting cross-training opportunities between public health, acute care, long-term care, and other sectors.
c. The development, in partnership with HRDC and educational institutions, of a comprehensive campaign to promote public health careers in Ontario.
d. The development of re-entry training positions in community medicine such that practitioners currently practicing in other specialties can become qualified to work in public health.
e. The development of bridge training programs intended to update the skills and qualifications of skilled individuals with previous public health experience. This should be offered together with incentives to recruit back such individuals currently practicing in other fields.
f. A review of recruitment and retention strategies for Medical Officers and Associate Medical Officers of Health, including remuneration.

The Ministry should provide a progress report on this strategy to the Minister by June 1, 2004.

Provincial/Municipal Funding

4. Ontario should immediately dedicate 100% provincial funding beyond March 31, 2004 for the 180 positions committed to Public Health Units as part of the Ontario SARS Short-Term Action Plan.

   Ontario should further develop an independent process and establish timelines for the establishment of 100% funding of all communicable disease programs in public health. This should be completed by December 31, 2004.

   All such funding should be conditional on the Public Health Units supporting re-deployment of these communicable disease resources in the event of a public health emergency, as part of constructing province-wide public health surge capacity.

5. Ontario should immediately re-structure the existing cost-sharing agreement for public health with the municipalities to move to between 75% and 100% provincial funding of public health. Programs, including

communicable disease programs funded at 100% by the province should be protected at 100%.

Implementation of the new cost-sharing agreement should be phased in within two to five years.

Public Health Units

6. The Ministry should review, in conjunction with the Medical Officers of Health, the Association of Local Public Health Units and the Association of Municipalities of Ontario, the existing number of public health agencies in the province. Within two years, the Ministry should act on the results of the review to consolidate the number of Public Health Units to between 20 and 25 units, retaining local presence through satellite offices.

Health Protection and Promotion Act – Compliance

7. The Ministry should immediately examine approaches to strengthen compliance with the *Health Protection and Promotion Act* and associated *Mandatory Health Programs and Services Guidelines*, in particular with regard to the resourcing and provision of mandatory health programs and services.

Public Health Division Capacity Review

8. The Ministry should immediately undertake a comprehensive external review of existing provincial Public Health Division capacity. The Ministry should act on recommendations arising from this review to revitalize provincial public health capacity within the context of public health renewal.

Performance Review for Public Health

9. Ontario should establish an annual performance report for public health in Ontario to be tabled to the legislature and disseminated to the public. This report should be prepared by appropriate third-party research organization body and should indicate the status of the following areas:

   a. Human resources
   b. Information technology
   c. Facility-acquired infections
   d. Mandatory program and service compliance
   e. Health of the population
   f. Central epidemiological capacity

Chapter Two: Infection Control

Regional Infection Control Networks

10. The Ministry should establish a process to develop Regional Infection Control networks across Ontario, with a designated hospital and Public Health Unit as joint leads in the development process. The networks should include but not be limited to Public Health Units, hospital infection control practitioners, Emergency Health Services, long-term care, and community-based healthcare providers.

Standards, Accreditation and Monitoring

11. The Ministry should immediately establish a standing Provincial Infection Control Committee that would report to the Chief Medical Officer of Health. The Committee would have the following functions:

    a. Supervise audits already underway of hospital infection control policies, programs and resources, and undertake additional audits in remaining Ontario healthcare facilities and organizations, to be completed by the summer, 2004.
    b. Informed by the results of these infection control audits, develop comprehensive provincial infection control standards for all healthcare facilities in Ontario, including acute and non-acute care hospitals, long-term care facilities, and primary care/community settings. Guidelines should be completed by October 31, 2004.
    c. Develop standards in collaboration with Health Canada.
    d. Develop appropriate mechanisms to ensure compliance for both existing infection control standards and new comprehensive provincial infection control standards.

12. The Ministry, together with the Provincial Infection Control Committee, and in conjunction with the Ontario Hospital Association, the Institute for Clinical Evaluative Sciences (ICES), and the Community and Hospital Infection Control Association, should develop core indicators for monitoring facility-acquired infections. This data should be reported as part of the annual status report on public health.

Facility Design

13. To ensure the appropriate supply and distribution of negative pressure rooms between and within hospitals, the Ministry should immediately undertake an independent evidence-based needs assessment, reporting back to the Minister by March 1, 2004. Informed by the results of this assessment, the Ministry must ensure that there is a sufficient supply of negative pressure rooms on a regional basis.

14. The Ministry must initiate a collaborative process with the Ontario Hospital Association to identify hospital physical plant barriers to

effective infection control and develop a multi-year implementation plan for their removal. Emergency rooms should be examined as a first priority, to be followed by intensive care units and wards.

Training and Orientation

15. The Ministry, in conjunction with the Ministry of Training, Colleges and Universities, should ensure adequate funding for the expansion of existing courses in infection control so that they can be made more widely available and accessible to all health professionals. This funding should encompass the:

    a. development of an online format for the existing course
    b. development of distance education initiatives
    c. provision of adequate reimbursement for the costs of attending or participating in such a course.

    Such funding should be in place April 1, 2004.

16. The Ministry must immediately develop strategies to achieve a minimum target of one infection control practitioner per 250 acute care and long-term care beds, and to work toward achieving a target of one infection control practitioner per 120 acute care and long-term care beds within three years. These strategies must include mechanisms for recruitment and retention of infection control practitioners.

17. The Ministry should support the development of 'train the trainer' initiatives by providing adequate funding to allow existing experienced and qualified infection control practitioners to act as educators of other healthcare professionals in infection control principles. The necessary level of such funding should be determined and made available by April 1, 2004.

18. The Ministry should actively engage and support regulatory bodies and professional associations in their review and updating of standards for the infection control education and maintenance of core competencies of all healthcare workers. The Ministry should also work to develop standardized educational programs that reflect these principles. The development of such standards should be complete by June 30, 2004.

19. The Ministry, the Ministry of Training, Colleges and Universities, the Council of Faculties of Medicine, the Canadian Association of Schools of Nursing, and other relevant bodies should work together to define core curricular elements of infection control education for all healthcare education programs and begin steps to establish these elements within such programs. The Ministry should establish a working body to

accomplish these goals by February 1, 2004, and curricular outlines should be in place by June 30, 2004.

Funding of Infection Control Programs

20. The Ministry, in collaboration with the Ontario Hospital Association, the Ontario Long Term Care Association, and the Ontario Association for Non-Profit Homes and Services for Seniors, should develop mechanisms to provide targeted funding for infection control programs within facilities and organizations, such as the development of a hospital Priority Program for infection control. This funding should provide for necessary human resources, such as infection control practitioners and infectious disease specialists. A status report on the development of these mechanisms should be provided to the Minister by June 30, 2004.

Chapter Three: Emergency Preparedness

21. The Ministry should immediately create an Office of Health Emergency Preparedness (OHEP) with appropriate staffing and authority and with a formal link with the Ministry of Community Safety and Correctional Services. The office should be established by April 1, 2004 and should:

    a. report to the Deputy Minister through a Health Emergency Preparedness Committee. The Committee should oversee the establishment of the office and its mandate, and provide ongoing advice and strategic direction for the OHEP
    b. provide leadership with respect to the Ministry's emergency preparedness activities
    c. ensure implementation of the recommendations below within the timelines stipulated. Until such time as the OHEP is operational, the Ministry must act on these recommendations in its place.

22. Once established, the OHEP should act as Ministry liaison with Health Canada, Emergency Management Ontario, and other relevant organizations regarding public health emergency preparedness. Specifically, the OHEP should begin to work closely with Health Canada in three areas:

    a. Ensuring the relevance and readiness of any emergency stockpile system and of appropriate provincial linkages and protocols as required for the purposes of coordination.
    b. Developing the Health Emergency Response Team program.
    c. Harmonizing federal and provincial emergency preparedness and response capacities for public health emergencies.

23. The Ministry should move promptly to review and assess specific areas of emergency preparedness, and create action plans and recommendations through advisory committees with clinical and operational expertise. The key areas for review and assessment are:

    a. The development of emergency protocols for patient transfer, including an objective evaluation of the Patient Transfer Authorization Centre system.
    b. A review of the accuracy and utility of the CritiCall Program. This should include an analysis of the role that the CritiCall Program and Central Bed and Resource Registry could play in the management of future outbreaks and the checks or mechanisms required to ensure data accuracy.
    c. The development of formal emergency protocols for rapid discharge of hospital Alternate Level of Care patients from hospital to alternative sites, specifically long-term care facilities. This should include a review and analysis of the use of the category 1A crisis designation under the regulatory provisions governing the placement coordination system under long-term care legislation.
    d. Provincial, regional, and institutional capacity to obtain and distribute supplies and equipment during infectious disease outbreaks and other public health emergencies.

    The Ministry should report the results of the review and present the accompanying action plans to the Minister by March 1, 2004.

24. Once the OHEP is established, it should have a dedicated website to raise public awareness and promote the transparency of the Ministry's preparedness activities. The OHEP should use this website to post reference documents, appropriate contingency plans, and promotional materials concerning Ministry and health sector emergency preparedness. Until the OHEP is fully operational, the Ministry should immediately post all contingency plans on the Ministry website.

25. The Ministry, and with the OHEP in a coordinating and monitoring role once it is established, should immediately update and test a generic plan or standard operating protocol for the provincial response to infectious disease outbreaks and public health emergencies, including bioterrorism. This plan should be complete by June 2004 and should be posted on the OHEP or Ministry website as soon as it is complete. As an interim measure, the Ministry should post on its website a summary of the main roles and responsibilities of government and independent organizations in planning and responding to public health emergencies by February 1, 2004.

26. The Ministry, and with the OHEP in a coordinating and monitoring role once it is established, should broadly disseminate contingency plans for pandemic influenza and smallpox by March 15, 2004. These plans should be posted on the Ministry website.

27. a. The Ministry, together with professional associations, regulatory colleges, and the OHEP in a coordinating and monitoring role once established, should continue to develop provincial registries to provide rapid deployment of healthcare personnel. An action plan for developing these registries should be presented to the Minister by February 1, 2004. Registries should be tested and evaluated within 12 months of their inception.
    b. The Ministry should initiate the ongoing development of cross-jurisdictional mutual aid agreements with other provinces and territories that provide for appropriate health human resources deployment, inter-jurisdictional licensing of professionals, compensation and remuneration agreements, and provision of supplies and equipment. The Ministry should provide a status report on this review by April 1, 2004.

28. The Ministry, in conjunction with the Ontario Hospital Association (OHA), Canadian Hospital Association (CHA), and other appropriate organizations, should immediately examine the development of a specific code for Infectious Disease Outbreaks. Ideally, this code would be adopted nationally and be reflected in appropriate contingency planning at the provincial and federal levels.

29. The Ministry, along with the Ministry of the Attorney General and other appropriate Ministries, should conduct a thorough review of existing emergency powers and related legislation with a view to establishing a graduated system for responding to health emergencies. A status report on this review should be submitted to the Minister of Health and Long-Term Care and the Minister of Community Safety and Correctional Services by March 1, 2004.

    As a second phase, the Ministry and the federal government should work together to ensure harmonization of emergency powers legislation by October 2004.

Chapter Four: Communications

30. By February 15, 2004, the Ministry should ensure that a health sector communications infrastructure is in place to reach all key stakeholders in a health emergency. This infrastructure should enable use of e-mail, facsimile, Internet and other technologically advanced modalities. It should be two-way, multi-functional and enable the Ministry to reach healthcare practitioners, healthcare organizations and institutions, support staff, educational institutions, emergency medical services, professional associations, licensing bodies and unions. This infrastructure should be tested and evaluated by March 31st, 2004.
    a. This infrastructure should facilitate the development of a formal Public Health Alert Network (PHAN), to provide communications concerning infectious disease outbreaks and public health threats to all healthcare providers.
    b. As critical to enabling this infrastructure, electronic literacy should be established as a basic standard of practice for all newly graduated healthcare practitioners within two years. Methods of ensuring the electronic competency of existing healthcare providers should be explored in collaboration with professional regulatory colleges within three years.

31. By January 15, 2004 the Ministry should review and update provincial crisis communications protocols to support the dissemination of information during a health emergency. These protocols should ensure:
    a. Early designation of a credible and consistent source of spokesperson(s) at the provincial level so as to deliver uniform and clear messages.
    b. Mechanisms are in place for two-way communications, which allow recipients to ask questions and receive clarification.
    c. Key personnel have specific communications training.
    d. Communications approaches are rapidly available in diverse languages and formats.

32. By March 1, 2004, the Ministry should develop a provincial public health risk communications strategy as part of overall contingency planning for a health emergency. This strategy should be based upon international best practices in risk communications, and should be shared with local and federal governments, and healthcare organizations to aid in the coordination of efforts and understanding of respective roles. The basis of this communications strategy should:

a. Build on and upgrade the use of proven effective communications vehicles, such as the use of web-based systems during SARS.
b. Include targeted approaches and tools for different audiences, such as healthcare providers and patients.
c. Be based upon strong links with Public Health Units.
d. Encourage and build upon public health risk communications networks.
e. Clearly identify provincial spokeperson(s) in a health emergency, building on trust and credibility.
f. Ensure that communications methods used during a health emergency are practical in nature. If directed to healthcare workers, communications should include proper techniques and best practices.
g. Incorporate effective means of educating the public about necessary screening measures, changes to visitor policies, and temporary restrictions of healthcare services. This should include the production of standardized material and notices to distribute to patients.
h. Make provisions for briefing sessions between the Ministry and healthcare providers, in the form of a webcast or other real-time communication mechanism, *shortly before* any public broadcast on urgent matters of public health.
i. Clarify, update and streamline policies and procedures regarding the use of the media in an emergency. This should include the continued use of effective media buying services to deliver public service messages.
j. Optimize use of health information hotlines for the public as part of overall contingency planning.
k. Include mechanisms to evaluate performance.

33. The Ministry should continue to liaise with Health Canada to ensure consistency and to clearly designate points of contact regarding risk communications plans. Formal memoranda of understanding should be reviewed and updated by March 1, 2004 so that they clearly outline roles and responsibilities. The Ministry should commit to review and update such agreements on a regular basis. Such reviews should include appropriate public health expertise and representation from OHEP.

34. The Ministry should immediately ensure that any written communication to healthcare providers during a health emergency is:

a. clear, concise, and operationally viable
b. based upon scientific evidence

c. supported by mechanisms for two-way communications and clarification.

35. By March 1, 2004, the Ministry should develop an enhanced plan to educate the public about possible or actual threats to public health and appropriate infection control measures. Healthcare organizations and professional associations should be engaged in developing and implementing this plan to ensure coordination of effort and to identify the most effective tools for healthcare providers to use in communicating with the public.

Chapter Five: Surveillance

36. The Ministry should build on work undertaken to-date and develop a comprehensive, provincial infectious disease surveillance plan by June 30, 2004. This work should:

    a. be carried out by a multi-disciplinary group, which includes scientific, government, information technology and healthcare partners, and which is accountable to the Minister of Health and Long-Term Care
    b. involve aligning and clarifying the roles of all post-SARS provincial advisory committees with working groups examining the issue of disease surveillance
    c. examine any opportunities or barriers to using existing tools such as Telehealth and Telemedicine
    d. include province-wide surveillance for facility-acquired infections.

37. The Ministry must ensure that an appropriate information technology infrastructure is in place to fully support the provincial infectious disease surveillance plan by June 30, 2004.

38. The Ministry should expedite the full implementation of the Integrated Public Health Information System (iPHIS), together with any required design modifications, across all Public Health Units in the province by June 30, 2004.

39. The Ministry must move rapidly to fully implement the necessary information technology supports to allow for contact tracing and quarantine management by Public Health Units by June 30, 2004. If this cannot be accomplished through design modifications to iPHIS, other suitable information technology platforms must be used.

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40. The Ministry should establish a working group with representation from healthcare stakeholders, researchers, and the Ministry to review on an urgent basis all data access and data sharing protocols between Public Health Units, the Ministry, municipalities, and the federal government. This review should identify how and to whom identifiable personal information is authorized to flow in the event of an outbreak. The working group should submit a report to the Minister by March 31, 2004 outlining the common data sharing structure, reporting relationships, and other common requirements of the data access and sharing protocols.

41. The Ministry should undertake a detailed legislative review of the *Freedom of Information and Protection of Privacy Act* and the *Municipal Freedom of Information and Protection of Privacy Act* in the context of:

    a. the reporting requirements set out under the *Health Protection and Promotion Act*
    b. identifying potential barriers to the sharing of information in appropriate and timely manner
    c. ensuring appropriate protections for personal information.

    This review should be completed by March 31, 2004.

Chapter Six: Health Human Resources

Enrollment

42. The Ministry, together with the Ministry of Training, Colleges and Universities and professional bodies, should continue to support new initiatives to increase the enrollment numbers of key health professions, including medicine, nursing, and respiratory therapy. In addition to work already underway, attention should be given to enhancing training opportunities in epidemiology, medical microbiology, occupational health and safety, community medicine, critical care, emergency and public health. Plans for increased training capacity in these key areas should be in place for the 2005/2006 academic year and reported publicly.

Staffing Strategies

43. The Ministry must immediately fund a minimum of two additional Medical Microbiologist positions for the Ontario Public Health Laboratory.

44. The Ministry, in collaboration with professional regulatory colleges and professional associations, should begin to develop new models for the efficient utilization of existing health human resources during a health emergency. As part of this process, consideration should be given to

creative staffing models, and using professionals to their full scope of practice.

45. The Ministry should continue to establish sustainable employment strategies for nurses and other healthcare workers to increase the availability of full-time employment. Progress reports should be issued on an annual basis with a final goal of greater than 70% full-time employment across all healthcare sectors by April 1, 2005.

Occupational Health and Safety

46. The Ministry, together with the Ministry of Labour, should initiate a joint review of current Occupational Health and Safety (OHS) policies, procedures, and resources in the healthcare sector. This should be completed by June 30, 2004.

    Informed by the results of this review, the Ministry, the Ministry of Labour, healthcare providers, and relevant professional organizations should look to developing best practices in OHS, with a view toward defining the role of OHS during an infectious disease outbreak and the most appropriate interface between OHS and infection control programs.

47. The Ministry, together with the Ministry of Labour and professional associations, should support the ongoing development of best practices for the use of personal protective equipment by December 31, 2004. The Ministry should also ensure that, in conjunction with healthcare provider organizations, adequate vehicles are in place to educate appropriate groups of healthcare workers as to the proper use, and the associated evidence behind such uses, of personal protective equipment. In addition, Ontario should support both public and private sector research initiatives with respect to the efficacy and adverse effects of personal protective equipment.

Psychological support

48. The Ministry, in collaboration with professional associations and relevant experts, should develop a plan for the development and use of psycho-educational programs in emergency preparedness training. These programs should address the following:
    a. Preparing staff to deal with the consequences of emergency situations, including anxiety and depression.
    b. Developing coping skills.

    The programs should be developed by summer, 2004.

49. The Ministry, in collaboration with professional associations and healthcare employers, should ensure the availability of psychological support programs for healthcare workers as part of a robust plan for

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emergency management. These programs should:

a. support all frontline workers
b. allow clear access to Employee Assistance Programs and other resources such as psychiatry
c. deal with issues of isolation and stigmatization
d. contacts and proactive approaches to manage work fatigue and workload stress.

Coordinated planning in this area should be initiated by February 2004.

Compensation

50. The Ministry should formalize, as part of its contingency planning for health emergency plans, mechanisms to quickly put into place programs, such as the SARS Compassionate Assistance Compensation Program for Healthcare Workers, to provide compensation for income lost as a result of being unable to work while ill, quarantined, or restricted to one facility as the result of a health emergency.

Process Recommendations

To ensure accountability and to facilitate a coordinated approach to implementing this Report, the Panel offers the following recommendations:

51. The Ministry of Health and Long-Term Care should establish a single coordinating body to oversee implementation of the recommendations contained within this report, within the stipulated timelines.

52. The work of this coordinating body should be guided and supported by a multidisciplinary Expert Advisory Group with representation from healthcare facilities and organizations, healthcare professionals and their associations, and the scientific community.

53. In recognition of those affected by SARS and to ensure accountability to the public with respect to the implementation of these recommendations, the Minister of Health and Long-Term Care should table a progress report in the Legislature no later than December 2004.

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...In March I arrive for work to a changed world. I endure my first screening, fill out forms, wait in line, have my temperature checked and am chastised for not having my ID with me. Bewildered, I make my way through the emerg staff entrance and encounter the re-designation of the area to a "clean zone" where I don the now requisite gowns, gloves, masks and goggles.

I negotiate the note writing, medication mixing and a multitude of other tasks with my dexterity impaired by gloves. Nothing however compares to the mask. A pounding headache, lethargy and disorientation appear a short time into each shift and last through the remaining long hours

In late-March I assist with the difficult intubation of a health-care worker. I later learn that colleagues at another facility contracted SARS from such an intubation and it becomes apparent that current precautions are not sufficient. Our protective clothing requirement is increased to two layers and I pray that this has not come too late for those of us who struggled to save a colleague's life that night.

While carrying out the labour intensive screening tests on a suspect patient, I become over-heated under all the layers, dizzy and light headed from the lack of air. As I'm drawing blood samples, the sweat begins to trickle down my face, my goggles fog over and my face shield sticks to my skin...I hope I don't faint from heat and hyperventilation. My patient is terrified. I squeeze his hand with my vinyl coated one and try to reassure him in the face of dreadful uncertainty and our mutual fear.

"My patient is terrified. I squeeze his hand with my vinyl-coated one and try to reassure him in the face of dreadful uncertainty and our mutual fear..."

...

We continue to see patients whose symptoms defy the news that SARS is done, that we are safe. We treat several members of one family who are sick with fevers and whose chest X-rays reveal the dreaded infiltrates. Red flags are raised and are countered with reassurances. Alarm bells are muted with the insistence that all is well.

And so it is, in defiance of the assertion that without a known link there can be no SARS, we find ourselves in the epi-centre of a second outbreak. The storm winds blow far more vicious this second time around.

Our workplace becomes a "level 3" facility and is transformed into what looks like the set of a science fiction movie. I am ordered into quarantine and feel as though such a restriction could apply only to some plague-threatened inhabitant of the Middle Ages. I venture out just to travel to work. Our emerg shuts down, but our ill colleagues stream in. The hospital has the feel of a ghost town - I see nurses and physicians cry.

"Our emerg shuts down, but our ill colleagues continue to stream in. The hospital takes on the feel of a ghost town... I see nurses and physicians cry."

I volunteer for the SARS intensive care unit where I encounter the very worst of this disease and its ravages. One weekend I am assigned to the care of a fellow nurse. She has a son the same age as mine and is living out what could easily be my fate.

While my experience pales in comparison to the anguish of those who have been stricken with SARS and of those who have lost the people they loved most in the world, I am nonetheless one of many whose personal and professional lives are irrevocably and permanently changed. Understanding the scope of those changes and grasping the extent of the personal impact will remain a work in progress for some time to come. [1]

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To the people of Ontario, and to the healthcare providers, agencies, and institutions that serve them every day, SARS symbolizes a traumatic, yet potentially transformative moment.

If we limited our view to and judged the scale of the problem based solely on the raw epidemiological data and the mortality rate of SARS, we would see only a small part of what the outbreak illustrated for the healthcare system as a whole. Indeed, in the cold light of data, the deaths from SARS will barely register in the annual mortality and morbidity statistics.

More than anything, SARS offered us a window onto the strengths and significant weaknesses within our healthcare system. The outbreak cast in a harsh light many of our assumptions about infectious disease control. It also vividly highlighted our lack of preparedness to address health emergencies of a potentially more deadly and unpredictable nature. For thousands of healthcare providers, the SARS experience has had a profound impact on how they view their work and workplace – for SARS was a disease that attacked those whose job it is to attack disease.

[SARS] vividly highlighted our lack of preparedness to address health emergencies of a potentially more deadly and unpredictable nature.

SARS represented a frightening and immensely stressful event for all those who contracted the illness, those forced into quarantine and their families and friends, and those who as patients experienced the disruptions and challenges first-hand. Clearly, SARS was an emergency for Ontario and for our provincial healthcare system.

An emergency, by definition, is a period of immense challenge, often marked by a degree of disorder and confusion. Recognizing the immense challenge that SARS forced on our healthcare system, the provincial Ministry of Health and Long-term Care established the Expert Panel on SARS and Infectious Disease Control in May 2003. In undertaking our work, we consciously recognized that some of the shortcomings in handling SARS highlighted in this report and in other reports were understandable. Specifically, healthcare providers on the front-lines and throughout the healthcare system had to overcome a huge lack of basic information about the nature of SARS, especially at the outset.

Those charged with managing the outbreak at the local, provincial, and national level, and those who served on the Ontario SARS Scientific Advisory Committee worked within the less-than-ideal structures used to manage and bring the outbreak under control; these people worked relentlessly, often in incredibly difficult circumstances. They did so tirelessly and, ultimately, successfully...although at significant cost. The comments and observations offered in this Report are grounded in our acknowledgement and respect for these efforts, in a desire to harness the knowledge learned through these experiences, and in an even stronger desire that these experiences not be repeated.

The Mandate of the Expert Panel

The purpose of the Expert Panel is to advise the Minister of Health and Long-Term Care in Ontario how to re-equip our health sector to better cope with infectious disease outbreaks and to address major health emergencies.

The mandate of the Expert Panel is:

- To determine the key lessons learned in the Ontario health system's handling of the SARS outbreak and with this understanding, provide practical, focused, and forward-looking advice on all appropriate health system measures to strengthen infectious disease control on a sectoral and system-wide level in Ontario.

- To provide advice and recommendations to the Minister of Health and Long-Term Care on the design and implementation of planned and future infectious disease management initiatives; including assessing required reserve/surge capacity in the system, research, and measures to strengthen infection control, public health and system response capabilities.

Work To-date

The Expert Panel received 265 written submissions and conducted almost 150 interviews and 12 focus groups with various levels of healthcare providers, administrators, and other experts. These organizations and individuals included nurses, physicians, respiratory therapists, infection control professionals, hospital CEOs, public health physicians and nurses, laboratory staff, long-term care facilities, community agencies, and emergency healthcare providers. In addition, the Panel commissioned independent research, carried out by third-party organizations, in a number of areas deemed critical to our analysis of the system's handling of SARS.

The submissions varied from formal, comprehensive documents to key observations and recommendations forwarded directly from frontline staff. Through a separate and confidential process, we interviewed or conducted focus groups with individuals who had contracted SARS, individuals quarantined due to SARS, and those who faced delays to their own health care as a result of SARS. Their views and words will be a central component in our final report.

Recognizing that there are other commissioned reports investigating SARS, we have chosen to focus on the systemic and policy challenges raised by SARS, and to prioritize the areas that require short-, medium-, and long-term actions. We acknowledge the immense scope of some of the key issues raised, and are therefore acutely aware of the need to produce directions and recommendations that are realistic and achievable.

The Panel approached its work by viewing SARS as more than simply one disease requiring one set of interventions. Rather, we have viewed it as a warning system, highlighting what could happen and what needs to be in place to deal with the next outbreak, be it SARS or something far more contagious or deadly.

The Expert Panel has not been mandated to act as an investigative body. This mandate more clearly falls to Justice Archibald Campbell and the Commission of Inquiry. We trust that the work and observations presented in this Report will be of value to the Commission and its staff.

Our vision is that our actions to strengthen the capacity to prevent and respond to infectious diseases become a pillar for the national public health renewal process.

Furthermore, our work complements the efforts of the National Advisory Committee on SARS and Public Health. Dr. David Naylor and his Advisory Committee have done a commendable job in articulating the organizational and capacity deficiencies that existed in preparing for, responding to, and managing SARS at all levels, as well as in documenting the chronology of events. Their Report, *Learning from SARS: Renewal of Public Health in Canada*,[2] documents specific deficiencies related to lack of leadership, resources, and preparation, and the strained and fractured relationship between the federal and provincial governments. Overcoming these divisions, which permeated the response to SARS, is a goal that is deeply shared by the Panel.

Dr. Naylor and the National Advisory Committee have also outlined a conceptual blueprint for revitalizing public health in Canada. The Panel strenuously advocates for Ontario to have the courage and passion to be at the forefront of crafting a new vision and structure for health promotion and protection in this province, as well as for all of Canada. Our vision is that Ontario's actions to strengthen the capacity to prevent and respond to infectious diseases become a pillar for the national public health renewal process as a whole.

Our framing principle in compiling this Initial Report has been to work within the overall conceptual framework set out in the National Advisory Committee Report. It is our sincere belief that Ontarians and Canadians will be far better served if the work that Ontario must pursue in the areas of public health and emergency preparedness are intimately linked to the ongoing work required at the federal and provincial levels.

We want to clearly indicate to the individuals and organizations that participated that we have heard what they had to say.

Therefore, our overarching recommendation is for Ontario to play an active advocacy role in ensuring that concrete progress is made at the federal and provincial levels in implementing the work of the National Advisory Committee. Similarly, in the recent Report of the Standing Senate Committee on Social Affairs, Science and Technology, Senator Michael Kirby and his Committee established tight timeframes to hold the federal government to rejuvenating the area of public health.[3] Ontario should use all of its power to join Senator Kirby in requiring and supporting rapid progress in the national rejuvenation of public health.

Purpose of this Report

This Report constitutes the first phase of the Expert Panel's work. It has two purposes: firstly, the Report is drafted to indicate to the Minister the most urgent measures needed, including short-term measures that should be considered or initiated as soon as possible, if not already underway.

Secondly, we want to clearly indicate to the individuals and organizations that participated that we have heard what they had to say. We strongly believe that effective change will only happen by building consensus – part of achieving that consensus is listening to the experiences of those at all levels who lived through the fight against SARS.

This first Report describes the Panel's learnings and observations around six themes – Public Health Models; Infection Control; Emergency Preparedness; Communications; Surveillance; and Health Human Resources. We are conscious of the need for due diligence in all of these areas and for further research and reflection before we can make additional, definitive recommendations on specific changes required.

Our final report, to be released by February 2004, will benefit from ongoing discussions with healthcare providers and from a series of independent research projects currently underway. As well, we will actively follow discussions and debates in other forums about the future national framework for public health in the coming months. Our recommendations about how best to integrate Ontario public health into a comprehensive national framework will be a significantly detailed component of our final report.

Conclusion

The worst mistake we can make at this juncture is to refuse to look honestly, openly and without rancour at ourselves, at our own institutions, at our own professions, at our own agencies and most certainly at our own provincial capacity to address the deficiencies revealed by SARS.

During the SARS outbreak, healthcare providers demonstrated enormous effort and, in many cases, extraordinary commitment to our healthcare system and to colleagues; as a result, the disease was successfully contained at tremendous cost. However, all involved realize that change is required. We hope that the commitment to change can be as strong and powerful as was the collective commitment to overcoming the outbreak.

In the healthcare area, it is all too common for the day-to-day challenges of planning, funding, and delivering basic services to drain the energy, commitment, and resources required to make fundamental changes. Indeed, it will take time to develop an effective, rigorous system to respond to infectious disease outbreaks. It will also require investment, patience, and cooperation. But it is essential.

It will take time to develop an effective, rigorous system to respond to infectious disease outbreaks. It will also require investment, patience and cooperation. But it is essential.

Improving our collective capacity to deal with emergencies such as SARS is a collective debt we owe to those who died from the disease, to those who lost loved ones, and to the healthcare providers who valiantly dealt with the disease.

More than a debt, however, improving our capacity to handle health emergencies is a down payment on the future. It is an investment for those who fight the next major health emergency, so that they may have access to some of the tools, supports, and processes that we lacked during Ontario's first SARS outbreak.

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Chapter One: Public Health Models

Introduction

In their October 2003 report to the federal Health Minister, Dr. David Naylor and the National Advisory Committee on SARS and Public Health called on the Federal/Provincial/Territorial governments to take decisive joint action to renew capacity within public health in Canada.

More than this, however, the committee called for a new approach – organizationally, in the proposed Canadian Agency for Public Health; and philosophically, in a resounding plea for more coordinated, collaborative, and effective work between different levels of government.

We call on Ontario to be an active participant in helping to realize the vision it sets out and in using its influence and support to ensure the National Committee Report is not allowed to gather dust.

This call to action by the National Advisory Committee was recently echoed by Senator Kirby and the Standing Senate Committee on Social Affairs, Science and Technology.[1] Our Expert Panel concurs with the direction provided in the National Report. We call on Ontario to be an active participant in helping to realize the vision it sets out and in using its influence and support to ensure the National Committee Report is not allowed to gather dust.

Successful public health renewal in Canada can only benefit from a similar renewal effort within Ontario. The two must proceed in tandem. By taking clear steps and actions toward a more consistent and coordinated approach to public health, Ontario will strengthen its own capacity and by doing so become a strong partner in a new national framework.

While clearly there are responsibilities and obligations that fall solely within the provincial domain that will require purely provincial solutions, SARS underscored for many, the need for an effective, responsive, and well-resourced public health infrastructure across Canada; a framework that is lacking today and that we must have in place for tomorrow.

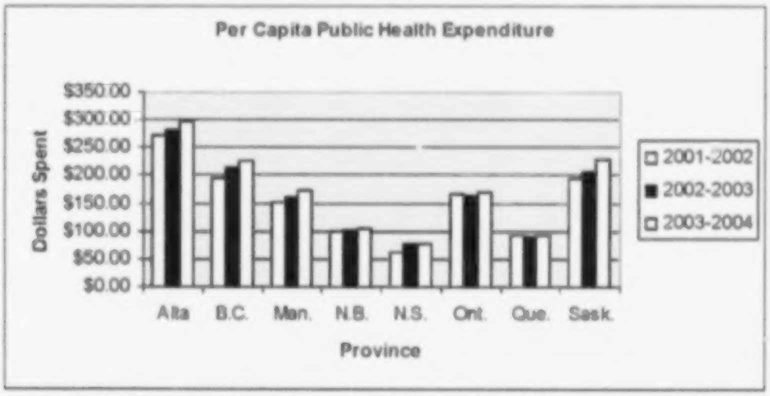
Public Health Renewal in Ontario

There is, at the heart of the current discussion on public health capacity in Ontario, an obvious disjuncture between profile and practice. Public health has been at the forefront of a number of the most significant healthcare events in Ontario over the past decade. In fact, the decade has been a tumultuous one for public health. At the same time this profile has been matched by relative scarcity of policy and analytical thought on the issue of overall public health capacity and structure. Questions of provincial vs municipal responsibility have dominated much of the discussion, but core capacity questions have not.

Attention to public health capacity where it has occurred, has typically been reactive, usually in the aftermath of one crisis or another, as in the work of the Krever Commission and the Walkerton Inquiry. As one prominent public health official with long experience rightly commented: "There is a grave concern that interest in Public Health will quickly wane when the SARS crisis is over. Past experience suggests that governments pay lip service to commitments in public health but after an emergency is over, the focus of attention returns to the acute care sector."

The following chart shows the disparities in public health funding across the country between 2001 and 2003-2004. Although per capita comparisons are not perfect and public health service levels vary significantly from one province to another, this quick view demonstrates the variation of investment both across the country, and across the last three years.

Figure 1: Per Capita Public Health Expenditure Estimates



Source: Preliminary Provincial and Territorial Government Health Expenditure Estimates, Canadian Institute for Health Information, 2003

The 2003 Report of the Provinical Auditor for Ontario has also raised questions around the per capita funding of mandatory health programs and services in Ontario and the apparent inequities in the province.[2]

Limited capacity has been added in certain areas, and a number of investments have been made in recent years, though they have typically been incremental, targeted to a specific disease or program. For example, several million dollars were targeted toward West Nile Virus strategies in 2002/2003 and 2003/2004. The Universal Influenza Immunization Campaign was funded as a separate program in 2000/2001.

While these infusions of resources have been welcomed, they have not addressed the issue of core capacity across the public health system. By system, we refer to the resources and capacity of public health planning and management at the provincial level, public health laboratory capacity, and overall local delivery capacity. If anything, new program funding in targeted areas may well have inadvertently concealed the weakened system foundations upon which these new initiatives were built.

The overall issues of provincial organization, capacity, and mandate for public health have not been comprehensively scrutinized at the provincial level for a number of years. Ontario is far from alone in this regard. With a few exceptions, such assessments have been largely absent across Canada.

Numerous reports have documented this growing risk. The Chief Medical Officers of Canada in the Report for the Federal/Provincial Advisory Committee on Population Health in 2001[3] issued what can only be termed an alarm call for public health capacity, and the earlier still Lac Tremblant Declaration of 1994[4] highlighted the increased strains on the public health system and the urgent need for investment in the core capacity of the system, particularly in infectious disease control. But as the National Advisory Committee rightly observed, even in the aftermath of these reports the public health systems still received little or no attention, no prominence, in the First Ministers Accords on Health Care,[5] and was barely addressed in the Royal Commission on the Future of Health Care in Canada.[6]

Perhaps this lack of serious attention within the policy sphere over the past decade reflects the place that public health had occupied within the circles of influence in health care, and perhaps also some unspoken assumptions. Assumptions that the basic core capacity to protect Canadians was already in place and relatively effective; that vaccinations and antibiotics had successfully warded off the threat of emergent infectious disease; that in an era of genetic screening, telemedicine, and robotic surgery, public health was just a little old-fashioned; that it was a necessary component, but not a major priority in a relatively wealthy country and with limited exposure to the traditional hazards.

Walkerton began to challenge these assumptions in Ontario, and SARS has subsequently shattered them. We have collectively, if belatedly, recognized that public health is not a peripheral part of our healthcare system but a key foundation of it. We now understand that 21st century health care requires well-resourced and coordinated public health capacity. It is a lesson that we have learned the hard way, by virtue of a health emergency that could have had catastrophic impacts on many more people. Moreover, we had been warned of the perils that would come from ignoring this truth, and fairly specifically at that.

In his April 2002 presentation to the Commission on the Future of Health Care in Canada, Dr. John Frank, Scientific Director of the Institute of Population and Public Health (part of the Canadian Institutes of Health Research), countered the perception of public health as a somewhat old-fashioned field by stating:

"It is public health services that identify and control hazards in a whole population such as Toronto's. Several lines of evidence strongly suggest that we are now truly living in a global village. International travel is at higher levels than ever before – bringing new opportunities for exotic (and ordinary) disease transmission... new forms of 'flu' that nature produces every year are now transmitted across continents each winter by air travelers, requiring complex surveillance measures and new influenza vaccines annually – a core public health function."[7]

International travel is at higher levels than ever before – bringing new opportunities for exotic (and ordinary) disease transmission...requiring complex surveillance measures and new influenza vaccines annually.

Within a year, a new coronavirus arrived by air in Toronto, and spread undetected through several hospitals. SARS had arrived – and the only thing that Dr. Frank failed to foresee was that this virus had no vaccine.

In the aftermath of the SARS outbreak, the Panel heard loudly and clearly from all sectors of healthcare about the need for a comprehensive review of public health capacity and structure in the province. Based on what we have been told, we believe that it is critical for Ontario and the Ministry of Health and Long-Term Care to immediately begin to review and address the following areas.

Recognize and Revitalize Public Health as a Career

SARS placed immense stress on an already strained public health system and on the people that work within it.

We heard clearly through interviews and discussions with Medical Officers of Health, their associates and staff about the emotional and psychological impact of SARS on their lives. More than this, we heard directly from both veteran medical officers and relatively new recruits working in the public health field, who are asking themselves a difficult question – Is it worth it anymore? Many are tired of working in what they see as a constantly under-resourced and undervalued field; one that has moved from the Walkerton crisis, through the West Nile Virus scare, to SARS. Many could earn significantly more money by simply moving back to clinical medicine, and it is clear that more than a few are examining this option.

Yet these individuals have so far remained at their posts because of a genuine commitment to public health. For how much longer? Ontario risks a great deal by relying on that personal commitment as a guarantee for the future. It is a thin line of defence that could become much thinner post-SARS.

Unless it is urgently addressed, the human resource challenge at the Medical Officer of Health and Associate MOH level in Ontario will worsen, perhaps rapidly. A number of pending early retirements of Medical Officers of Health, will add to the significant number of unfilled positions that already exist. Moreover, we also heard concern expressed that without concrete action at the provincial level, there is a risk that the proposed Canadian Public Health Agency – as positive as this move is seen by many – may, in fact, make recruitment tougher by drawing valuable skills away from the local level.

This urgency was highlighted by the very first recommendation of Justice O'Connor:

> The *Health Protection and Promotion Act* should be amended to require boards of health and the Minister of Health [sic], acting in concert, to expeditiously fill any vacant Medical Officer of Health position with a full-time Medical Officer of Health.[8]

It is now 2 years since the Walkerton report. We cannot stress strongly enough that Ontario must stabilize and strengthen its existing core capacity. That is the number one immediate need. Building for the future requires strong foundations; we must not allow these foundations to further erode.

Earlier in this paper, we outlined – as did the National Advisory Committee – that public health has been low on, or even missing from, the health agenda at the national and provincial levels. This lack of attention is not without effect; it sends a message to those whose lives are invested in this work – a message that can easily be heard as 'you are not valued.' Ontario must change that message, through meaningful progress and not simply through words.

Any new models that are built, either nationally or provincially, are built on people. The prospect of the impending retirements of a number of key Medical Officers of Health, if coupled with resignations, will make the rebuilding process even more challenging than it already is. The urgency of addressing the human resource challenges in public health cannot be underestimated.

The urgency of addressing the human resource challenges in public health cannot be underestimated.

The Ministry cannot afford to delay reinforcing the leadership of public health at both the local and provincial level. The Panel therefore strongly suggests that the Ministry begin immediate development of an integrated health human resource revitalization plan for public health.

Core components of such a plan should include:

- Developing an enhanced **ongoing training and education program for existing staff**, with the Ministry establishing a training grant and sponsorship initiative. This program should actively promote and encourage cross-training and partnership-based training approaches with the broader health sector.

- Developing **a comprehensive campaign to promote public health careers** in the province (in conjunction with appropriate partners, and coordinated with work through Human Resources Development Canada).

- Developing a **public health re-entry program** to offer incentives and bridging training and mechanisms to recruit back to public health those who have left the field in recent years or whose existing skills and training made them potential candidates for a career in public health.

- Finally, the plan should address mechanisms to ensure that **Medical Officer and Associated Medical Officer pay scales** reflect the skill sets required, and are benchmarked against appropriate comparator medical sub-specialties and the remuneration levels in family practice.

Some of these issues are discussed in further detail later in this report.

The panel heard valuable advice from the Ontario Medical Association concerning successful models used in other fields to rejuvenate and revitalize both recruitment, recognition, and retention of needed healthcare resources.

A collaborative health human resource strategy for public health is an achievable, cost-effective and necessary project that can have an immediate revitalizing effect.

The Municipal Role

Of all the provinces, Ontario is the only one to extensively cost-share public health programs with municipalities. A significant number of submissions to the Panel indicated a belief that this shared responsibility and shared funding is the Achilles heel of public health in Ontario. As one submission by an acute care hospital succinctly put it: "Reconsider the Public Health governance issues. Does it make sense for them to belong to the municipal structures when the rest of the healthcare system is governed provincially?" Other commentators were even more harsh: "Public health is far too important to be downloaded to the municipal level; there is too much knowledge and expertise associated with it to leave it with Municipal councils and Public Health Boards."

> **"Reconsider the Public Health governance issues. Does it make sense for them to belong to the municipal structures when the rest of the healthcare system is governed provincially?"**

To be sure, splitting the jurisdiction in public health may impose additional barriers to a consistent level of protection for Ontarians. A case in point appears in the response to the West Nile Virus. The Panel heard that certain Public Health Units were unable to benefit from the additional resources provided by the province in 2002 for West Nile containment, because of difficulties obtaining matching funding from the municipal level. In the case of SARS, some units may have to not hire staff and/or give up staff hired under the province's short-term action plan for SARS when the funding for these positions reverts to 50/50 cost sharing after March 31, 2004. The Panel strongly suggests that the recently funded positions linked to the SARS short-term action plan be made 100% provincial on an ongoing basis. As a condition, these positions should also clearly be made

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available for re-deployment by the province if needed.

We were also told that introducing new or changed programming on a co-funded basis can involve extended negotiation, and pose additional organizational and coordination challenges. In a widescale infectious disease outbreak such as SARS, the most essential and challenging requirement for an effective response is coordination across jurisdictions. We must ask ourselves how a consistent response might have been hampered by the fact that public health staff find themselves answering to municipal councilors as well as de-facto to the province. This was a major frustration experienced by the Medical Officers of Health.

For these reasons alone, the future role of municipalities in public health requires serious external scrutiny. To our knowledge, no full independent evaluation of the impact of the transfer of responsibilities for public health to the municipal level, and of subsequent co-funding, has been undertaken. Given the importance of public health and the fact that no other jurisdiction in Canada has pursued this model, at a minimum the impact of this arrangement must be documented.

The municipal component of funding is certainly an issue. Yet that alone cannot explain the difference in organization and capacity between Emergency Health Services (EHS), also municipally funded, and public health during SARS. The difference is marked.

Like all healthcare providers, EHS faced multiple challenges during SARS. EHS, however, had the clear benefit of: a) a structure and mandate designed precisely for emergency response (including a clear and effective command structure); and b) routine day-to-day interaction with a broad range of health sector agencies and bodies outside of their own domain.

This functional integration is an organic part of the role of an emergency health service, forcing it – unlike much of health care in Ontario – to engage laterally across different healthcare settings. While there were problems with information flow to paramedics, by and large these problems did not appear to flow from the structure and function of EHS, but from confusion in terms of overall leadership.

The municipal role, therefore, is only one factor in assessing public health. The essence of public health is local, as numerous individuals told the Panel. Effective capacity, understanding, and links to the community must exist at the local level for public health to work. These strengths cannot be created or replaced by a new national or provincial agency or structure.

Furthermore, we were told that real public health gains in certain areas – in controlling tobacco use, for example - have proceeded more rapidly and successfully at the municipal level in Ontario than at the provincial level. The balance between local linkages/impact and provincial and national capacity must therefore be carefully weighed. One cannot and should not come at the expense of the other.

In the immediate term, it is clear that the province lacks the staffing centrally to provide anything but limited surge capacity support to the Public Health Units and there is clear consensus that this must change.

Critical Mass

Ontario has 37 Public Health Units, whose catchment areas range in population size from millions (in the case of Toronto) to a few thousand. Based on the Panel's analysis, local public health capacity is significantly more broadly distributed in Ontario than in any other jurisdiction in Canada.

Many observers have commented on Ontario's diffuse public health

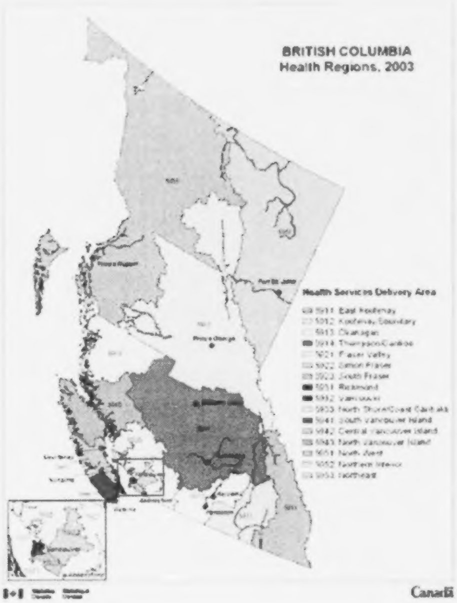
BRITISH COLUMBIA
Health Regions, 2003
Health Services Delivery Area
5011 East Kootenay
5012 Kootenay Boundary
5013 Okanagan
5014 Thompson/Cariboo
5021 Fraser Valley
5022 Simon Fraser
5023 South Fraser
5031 Richmond
5032 Vancouver
5033 North Shore/Coast Garibaldi
5041 South Vancouver Island
5042 Central Vancouver Island
5043 North Vancouver Island
5051 North West
5052 Northern Interior
5053 Northeast
Canada

Figure 2: Public Health Regions in British Columbia

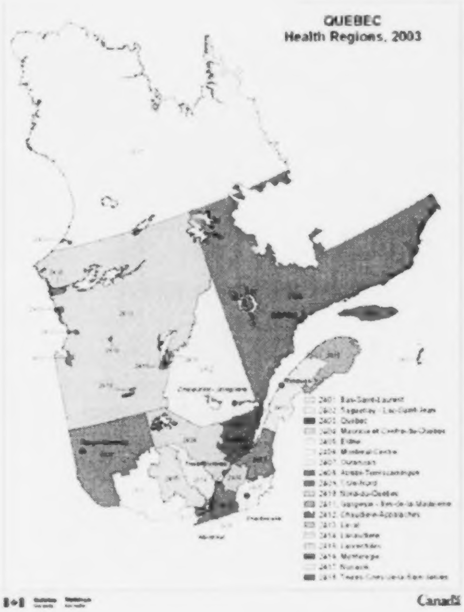
QUEBEC
Health Regions, 2003
2401 Bas-Saint-Laurent
2402 Saguenay - Lac-Saint-Jean
2403 Québec
2404 Mauricie et Centre-du-Québec
2405 Estrie
2406 Montréal-Centre
2407 Outaouais
2408 Abitibi-Témiscamingue
2409 Côte-Nord
2410 Nord-du-Québec
2411 Gaspésie - Îles-de-la-Madeleine
2412 Chaudière-Appalaches
2413 Laval
2414 Lanaudière
2415 Laurentides
2416 Montérégie
2417 Nunavik
2418 Terres-Cries-de-la-Baie-James
Canada

Figure 3: Public Health Regions in Quebec

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BRITISH COLUMBIA
Health Regions, 2003
Health Service Delivery Area
Canada

Figure 2: Public Health Regions in British Columbia

QUEBEC
Health Regions, 2003
Canada

Figure 3: Public Health Regions in Quebec

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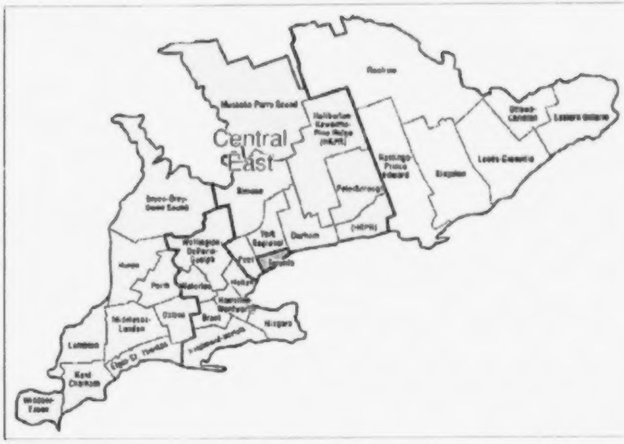

Central East
Simcoe
Durham
Peel
Toronto
Huron
Perth
Waterloo
Halton
Oxford
Brant
Niagara
Lambton

Figure 4: Public health regions in Ontario (south)
Source: Association of Local Public Health Agencies, 2003

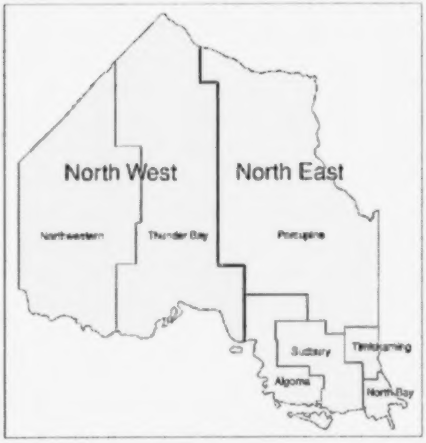

North West
North East
Northwestern
Thunder Bay
Porcupine
Sudbury
Timiskaming
Algoma
North Bay

Figure 5: Public health regions in Ontario (north)
Source: Association of Local Public Health Agencies, 2003

Province	**Health regions**	**Units**	**Population* (thousands)**
Newfoundland and Labrador	Community Health Regions	6	519.6
Prince Edward Island	Health Regions	4	137.8
Nova Scotia[1]	Health Regions (Zones)	6	936.0
New Brunswick	Health (Hospital) Regions	7	750.6
Quebec	*Régions sociosanitaires* (RSS)	18	7,487.2
Ontario	Public Health Units (PHU)	37	12,238.3
Manitoba	Regional Health Authorities	11	1,162.8
Saskatchewan	Regional Health Authorities	13	994.8
Alberta	Regional Health Authorities	9	3,153.7
British Columbia	Health Service Delivery Areas	16	4,146.6
Yukon Territory	Entire territory	1	31.1
Northwest Territories	Entire territory	1	41.9
Nunavut	Entire territory	1	29.4

Figure 6: Public Health Regions in Canada Compared

Source: 2003 Population Data from Statistics Canada CANSIM II, table 051-0001 organization. A June 2003 report of the Canadian Institute of Health Research (CIHR), *The Future of Public Health in Canada* made the following observation about critical mass:

> Public Health is a system based on populations. There needs to be a sufficient population base for a critical mass of technically expert public health staff to be effective. In the U.S. many states have public health locked into county boundaries. This creates too many local health departments and spreads resources too thinly. This leads to isolation and a decrease in multi disciplinary interactions critical to effective public health delivery of services. This situation is further compounded by a reliance on local funding sources.[9]

Following Walkerton, Dr. Richard Schabas, a former Chief Medical Officer of Health for Ontario, noted:

> Modern public health requires increasing specialized expertise. Small health units simply lack the resources to accommodate this. They are becoming as anachronistic as the cottage hospital. A population base of at least 200,000, and ideally considerably more, is necessary to support a truly up-to-date public health department.[10]

Dr. Schabas could have gone further. In the event of a significant emergency requiring a health sector-wide response, we face another challenge. Not just the number and spread of Public Health Units across the province, but the alignment of planning boundaries between Ministry planning regions, Public Health Units, and district health councils.

For example, the East Region planning area covers nine separate Public Health Units, one of which (Renfrew County) also finds itself in the North Ontario planning region of the Ministry. The same area is covered by two district health councils. The Southwest region is covered by nine Public Health Units, and straddles the boundaries of four district health councils. These observations are not meant to suggest the notion that public health capacity at the local level is unimportant. Indeed, the Panel feels it is vital.

However, the Ministry must urgently examine the layering of boundaries and functions between planning regions, Public Health Units and district health councils. This complete lack of alignment is a systemic barrier to improved coordination. The Ministry must also look at the need for a coordinated critical mass of public health and infection control expertise to be constructed on a regional basis, with appropriate central coordination support.

Full alignment will take time. But efforts to create regional infection control networks – resourced with appropriate coordination capacity and skill sets to move between healthcare sectors – would be a clear and positive step in that direction.

The Panel does not hesitate to acknowledge that many smaller Public Health Units have performed exceptionally well and have developed effective links with the communities that they serve. However, what is of some concern – and certainly worth more comprehensive analysis – is the question of core critical mass.

To what extent does the relatively diffuse organization of public health across Ontario, combined with overall staffing challenges at both the local and provincial level, impede the capacity to re-direct staff and other resources during emergencies? To what extent does the current model mitigate against system-wide response and effective multi-sector collaboration? And at what stage is a Public Health Unit too small to house rationally the breadth of expertise that it should have to function effectively?

Public Health Interface with Ontario's Healthcare System

Another area requiring detailed examination is how to significantly improve the links between Public Health Units and the rest of the healthcare system. As one larger Unit stated: "The outbreak showed how great the divide is between public health and the clinical sector. The two for the most part work in isolation of each other and this lack of integration interferes with cross-sector communication and collaboration...collaboration has to continue even after the crisis is over. Otherwise walls will be erected and once more different sectors will once again work independently of each other."

Many acute and community-based care providers and Public Health leaders repeatedly told the Panel of their desire for more effective and lasting partnerships between Public Health and other core components of the healthcare system. As far as the formal components that are in place to support this, Ontario does not compare well with other jurisdictions.

Ontario is unique in Canada with regard to its basic organizational structure for the broader management of health care. It has even been called the 'control group for regionalization.' The province does not have in place an established structure through which public health formally and routinely engages with the broader health system management structures at a senior level. In addition, as outlined above, the existing planning regions of the Ministry do not formally incorporate public health in a meaningful way, and do not, in most cases, easily align with the structure and distribution of Public Health Units in the province.

For comparative purposes, in the British Columbia and Alberta regional models, public health leadership, at the Medical Officer of Health level, is effectively linked into the decision structures of the regional health authority.

The relationship of public health within a regional model is far from perfect. As the CIHR report stated: "The regionalization reforms in many Canadian provinces and the attempted downloading of funding responsibilities in Ontario appear to have given little attention to the impacts on the public health system."[11]

While certain regionalization efforts may not have addressed in a very comprehensive manner the potential impacts on public health, one clear benefit certainly occurred - whether by accident or design - public health interests ended up sitting alongside the acute-care sector within an overall governance framework. Few would argue, however, that this proximity resulted in large re-allocations of funding away from the acute sector. That said, the two components of the system are at least within the same tent and, for the most part, operate within the same regional boundaries.

The Panel is not implying that Ontario should move quickly to establish regional health authorities - although a number of commentators have clearly stated that this model could have provided a significantly greater operational cohesion to the SARS containment efforts in Toronto. The purpose of the comparison is to illustrate the lack of comparable formal vehicles by and through which public health, at the local or regional level, can intersect with the broader health sector and management structures.

The absence of effective regional networks is amply demonstrated by the following submission from a multi-site facility straddling organizational boundaries: "Our facilities fall within the [catchment] of different jurisdictions of providers. For example, we needed to be in regular contact with the Durham and Scarborough Public Health Units, the Durham and Scarborough CCACs, and at least three Ambulance Services - Durham, Toronto, and York. All of these agencies were interpreting directives and communicating their requirements slightly differently. As the receiving organization of these various nuances in protocols, it contributed to some initial confusion."

While roles and responsibilities in Ontario Public Health are relatively well-defined vertically, such as. local Medical Officer of Health to Chief Medical Officer of Health, they are much more poorly defined horizontally, for example local Public Health Unit to local healthcare delivery agents and hospitals. The primary reporting lines to the local board of health often sits uncomfortably with the de-facto reporting to and responsibilities of the Chief Medical Officer of Health. A review and modification of this relationship may be required to optimize central coordination in the context of an outbreak.

Despite the difficulties, different Public Health Units across Ontario have moved to create formal and informal networks with other components of the healthcare sector. While these efforts are commendable, the degree of interconnection between Public Health and, for example, the hospital sector, remains highly inconsistent. And the absence of direction or formal organizational structures remains.

This theme emerges clearly in the views of many non-public health service providers. The experience of many healthcare providers dealing with local Public Health Units during SARS varied considerably from unit to unit. Some units outside of the GTA played a major role and received high praise; others were seen as disconnected and lacking the skills and understanding to navigate the hospital system: "I am in long-term care and generally our Public Health inspectors from our local Public Health Department were our contacts and I found that our Public Health Department seemed to be left out of the information loop and were often unaware of new directives, etc. until we informed them."

We recognize that in any emergency, there will always be varied local responses, and that the capacity will always be heterogeneous. That said, formal structures and approaches linking public health to the broader health system with expectations and roles defined and a solid central link, are important enablers for an effective response in an outbreak. This issue requires significant and ongoing attention. On the positive side, the Panel heard how other components of the health system have, post-SARS, a heightened appreciation of the role and need for public health, and a strong desire to formalize and build more effective, respectful, working partnerships.

One necessary support to developing a more effective and coordinated working relationship between acute care and public health is a clarification by the Ministry of the precise expectations of local Public Health Units regarding facility-based infection control. Respondents from both public health and the acute care sector called for a detailed review of the existing *Mandatory Health Programs and Services Guidelines*[12] for public health as they pertain to facility-based infections. Such a review should reflect what has been learned to date, and it should be refined and clarified in partnership with both public health and acute care expertise. The Panel heard that at this stage, the hospital-based responsibilities of public health contained in the mandatory guidelines are insufficiently detailed and inconsistently applied. The resulting update should be broadly disseminated.

Regional Infection Control Networks

If Ontario is not going to proceed in the near future with developing any new regional delivery/authority system for health care, then it is absolutely imperative to create new formal structures at the regional level to link the hospital, community, and public health expertise. Initially, these regional networks should be formed around infectious disease control and health emergency preparedness.

The Panel endorses the call by the National Advisory Committee to create regional networks on a national level. However, we urge the Ministry to consider this approach not only as part of a national response, but also as part of a provincial system. Recognizing that the links and focus of such networks will need to be very clear, the Panel has been speaking directly to providers and organizations to obtain input on how best to operationalize this concept.

...there appears to be broad agreement with the development of regional infection control networks.

Based upon what we have heard to date, there appears to be broad agreement with the development of regional infection control networks. The panel heard clearly that for these networks to succeed a number of factors will have to be in place. These include:

- Coordinated resourcing and support: Given existing staffing pressures at Public Health, additional support and coordination resources will clearly be required to draw together the required partners for an effective regional network system. Ideally support should also be available for a lead hospital to work in partnership with public health lead in this process.
- Rational regions: The primary challenges in establishing any regional networks are the boundaries and the degree to which these correspond to organizational and patient flows. Regional Networks would also need to be broad enough to allow for a certain core critical capacity (ideally, access to Academic Health Science Centre Resources).

- Clear roles and responsibilities: Any regional networks developed will need clear and well-defined relationships between the parties – with roles, responsibilities, and appropriate linkages defined at the outset. The panel envisages a proposed Health Protection and Promotion Agency with a Division of Infection Control, acting as both an anchor to the networks and a resource to coordinate and enhance their development.

A Question of Independence

Who public health officials answer to and to what extent this is perceived as influencing their actions, are questions that have been prominent in responses from the field. These questions have permeated, in a variety of forms, numerous interviews and submissions to the Panel. Underlying these questions is a perception that the lines between public health management and political considerations during certain stages of the SARS outbreak appeared blurred – we are ill-equipped to definitively challenge or confirm this perception. However, perceptions matter.

One physician submitted the following comment: "A centralized, adequately resourced epidemiologic capacity needs to be immediately developed. This is clearly not a function that the present Public Health Division is fulfilling, especially given the degree to which the Division can be/was hampered or obstructed by bureaucratic imperatives and/or political interference."

Certainly, these concerns are not universal. Indeed, some praised the honesty of communication; as one submission stated: "The honest and open approach taken was helpful in allaying public fears and maintaining public trust."

Yet questions of independence run deep. For instance, individuals pointed out that at the local level, a board of health – to whom the local Medical Officer of Health and staff must answer – may, under the existing *Health Protection and Promotion Act* (HPPA),[13] consist solely of the municipal councilors and provincial appointees. Here, the potential for a lack of transparency, or at least a perception of conflict of interest, might well arise.

The question of how much of an activist a Medical Officer of Health can be on potentially contentious issues involving other aspects of council business with health implications, while at the same time anticipating the next budget request from the same council, is a live question.

While public appointees clearly bring perspectives to the table that may not always align with the opinions of the Council, the City of Toronto, among others, has wisely elected to include public representation on the board of health. This facilitates greater transparency and independence to public health decision making – a measure that Ontario should examine in conjunction with municipal partners as possibly worthy of support.

The principal barrier to potential conflicts rests in part on the degree to which the province is prepared to monitor and enforce aspects of the HPPA and, at the end of the day, largely on the integrity of our Medical Officers of Health. We are fortunate that this integrity is solid, but we should not be complacent that integrity alone is sufficient. We urge that an assessment be done of the overview and monitoring process at the provincial level and the potential need for additional resources and rigour in this area to ensure compliance in word and spirit with the HPPA and the *Mandatory Health Programs and Services Guidelines*. Indeed, the Provincial Auditor for Ontario has raised the need to ensure compliance with these guidelines in the 2003 report.

It has long been the practice (far from unique to Ontario) that the Chief Medical Officer of Health reports to the Minister of Health. Dr. Richard Schabas, who served in that role, has spoken forcefully on the issue of independence. Following the Walkerton Inquiry, he wrote: "Public health officials must always be free to speak and act in the interests of public health. Unfortunately, public health in Ontario and across Canada is too enmeshed in with politicians and bureaucrats to ensure this...[they] must serve two masters: the government and the public."[14]

Dr. Schabas went on with much foresight to issue a call for the creation of an arm's length agency based on the US Centers for Disease Control for Ontario and potentially for the nation.[15]

The twin themes of independence and capacity permeate discussions on a national and/or provincial Center for Disease Control model and the proposed Canadian Public Health Agency. As one healthcare association suggested "A key factor is that these outbreaks need to be handled by people who do not report to government. Politics played too important a role in the handling of the outbreak. What is needed is an agency that is arm's length from government (e.g. a CDC)."

Senator Kirby, in discussing the proposed Canadian Public Health Agency, rightly indicates that independence must be weighed against the need for any public health body to function alongside other areas of health care and "people, agencies and government departments...other levels of government and health professionals inside and outside of government."[16]

The Panel is aware that a balance between operational independence and functional connectivity with both the broader healthcare system and the Ministry is not an easy one to find. The solution we believe lies neither in full isolation nor the opposite.

Given the cumulative nature of the high profile issues that Ontario's public health sector has dealt with over the past five years - Walkerton, West Nile, and SARS - and the tremendous economic and political ramifications of SARS, Ontario needs to reinforce that we have in place appropriate distance between public health and the political process.

Over time, any doubts about the source, timing, or motives of public health information have a corrosive effect on confidence, not only in the structure but the information itself. Addressing this perception, and reinforcing the centrality of an independent voice for public health, is a key early step in promoting public health renewal in Ontario.

In the short term, several legislative or procedural approaches can be taken. The National Advisory Committee has cited that B.C. and Manitoba have appropriate provisions, whether through legislation or contract, that allow the Chief Medical Officer of Health certain latitude to issue information independently of the Minister of Health. In the medium term, the proposed Canadian Public Health Agency creates opportunities for Ontario to explore agency models for public health. Ontario has both an opportunity and a responsibility.

This area is extremely complex, given the existing funding structures and levels of government involved. However, it is an area that the Panel is giving serious and detailed consideration to, with informed advice forthcoming in our final report in February.

Public Health Laboratory Capacity

The need for renewal in the public health laboratory sector was a core component of the National Advisory Committee report. The Panel wholeheartedly supports the call for establishing an enhanced national Public Health Laboratory network as a rational approach to maximize existing expertise in the system and to provide much needed surge capacity beyond our existing frameworks. However, for Ontario to maximize its contribution to any national model, a number of critical factors must be addressed.

It is clear to the Panel, from the submissions and interviews on this topic, that the public health laboratory capacity, and overall structural and organizational linkage with the public health system, requires major work.

As one submission stated: "In Ontario, a lab with no surge capacity to deal with even limited outbreaks (for example the West Nile outbreak in 2002) was forced to try to cope with hundreds of SARS specimens submitted per day, no way to determine which cases were legitimate, and no way to prioritize testing – until we were able to come up with our own solution during phase 2, this also meant that the Winnipeg lab was trying to cope with the hundreds of specimens we shipped to them daily through the outbreak."

After examining the organizational structures and functions of public health laboratory systems throughout Canada and internationally, we have identified three main areas as critical markers of an effective public health laboratory system: scientific capacity; organizational alignment; and, partnerships with academic health centres.

1) Scientific Capacity

The Panel commends the work of the Medical Microbiologists and staff at the Ontario Public Health Laboratories, who the Panel has heard performed superbly in the face of a volume of testing for which they were clearly unprepared. We also acknowledge that in recent months Ontario has taken steps to hire an additional Medical Microbiologist at the provincial public health laboratory and add new specialized testing capability.

However, the submissions to the Panel from the laboratory sector and beyond indicate an ongoing and significant concern that the existing core scientific medical and research capacity at the Ontario Public Health laboratory is far short of what is needed for a province with a population of over 12 million. The Panel heard that the level of medical leadership and microbiologist capacity in Ontario is considerably below that of British Columbia – a province with a population of slightly over 4.1 million.

The lack of a critical scientific mass presents an immense challenge in the face of emergent diseases, or health emergencies resulting in large volumes of testing. The resulting delays – particularly acute during the first West Nile Virus outbreak – are partly understandable given the available capacity. That said, the delays, some measured in months, are not simply a lab issue but have impacts system-wide on our collective capacity to respond, monitor, and treat infectious disease outbreaks.

Therefore, we must challenge the thinking that staffing for new diseases and outbreaks is either anomalous or wasteful duplication. In the past five years, the Ontario Public Health laboratory has dealt with huge testing volumes for SARS, West Nile Virus, E.coli 0157, and anthrax scares. Surge capacity in public health labs must become day-to-day capacity. The past decade has clearly taught us that outbreak can follow scare can follow outbreak. This is the business reality for the labs sector, and staffing and resourcing should reflect it. Early action in this area is both vital and relatively low-cost. A first step would clearly be to proceed, as recommended, with the immediate addition of increased Medical Microbiologist capacity – a minimum of two additional positions are required.

In addition, in order to provide more comprehensive advice to the Minister in this area, the Panel has commissioned an independent review of Ontario's Public Health laboratory capacity, comparing it to eight other jurisdictions in Canada, the U.S., and Europe. We anticipate being able to provide more detailed direction in this area in our final report.

2) Organizational Alignment

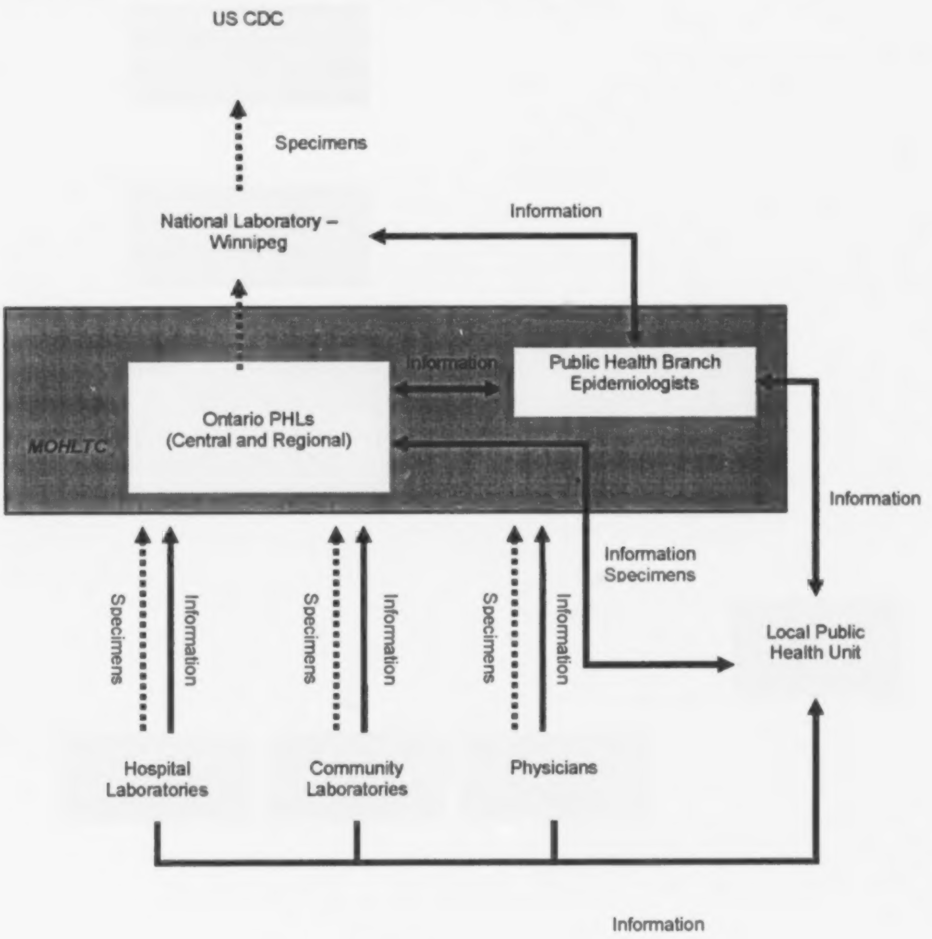
The experience of the Panel members, submissions from the lab sector, and the work of Dr. Naylor and the National Advisory Committee have all indicated a defining characteristic of effective public health laboratories – the alignment of scientific, testing, epidemiological, and analytical skills under a single organizational framework, preferably in a single location. This is the case in Quebec, British Columbia, the United Kingdom and the US CDC.

The rationale for this model is clear. The elements of surveillance laboratory, testing analysis, and epidemiologic investigation can operate functionally within a single framework. Housing a critical mass of scientific and analytical capacity within a single entity allows for more rapid information exchange, analysis and follow-up and across functional lines. Unfortunately, this is not the case in Ontario.

The Ministry has an operational separation between laboratory testing and epidemiological analysis capacity under two distinct organizational structures. This is a clear challenge to information flow and potentially to timeliness of disease control measures.

Indeed through interviews, we heard that this functional split did in fact cause significant problems under the strain of SARS. At one stage the Ontario laboratory was using Health Canada guidelines to determine testing protocols for SARS, while Public Health Units sent different guidelines to physicians. This breakdown of normal processes caused some chaos. Regardless of how it happened, the schematic below shows the nature of the problem, and how in a crisis it could easily happen again.

Current Ontario Public Health Laboratory Model


US CDC
Specimens
National Laboratory – Winnipeg
Information
MOHLTC
Ontario PHLs (Central and Regional)
Information
Public Health Branch Epidemiologists
Information
Information Specimens
Local Public Health Unit
Specimens
Information
Specimens
Information
Specimens
Information
Hospital Laboratories
Community Laboratories
Physicians
Information

3) Partnerships with Academic Health Centres

In British Columbia and many U.S. states, it is routine for the public health laboratory system to be aligned formally or informally with academic institutions and health science centers. This offers several advantages:

- **Fostering a community of interest and knowledge**: Affiliate or partnership type models do not replace the need for core central public health lab capacity. But they have the potential to broaden the depth and range of expertise that the lab can draw upon. In its ongoing work, the Panel will address this issue and the possible options for Ontario in greater detail.

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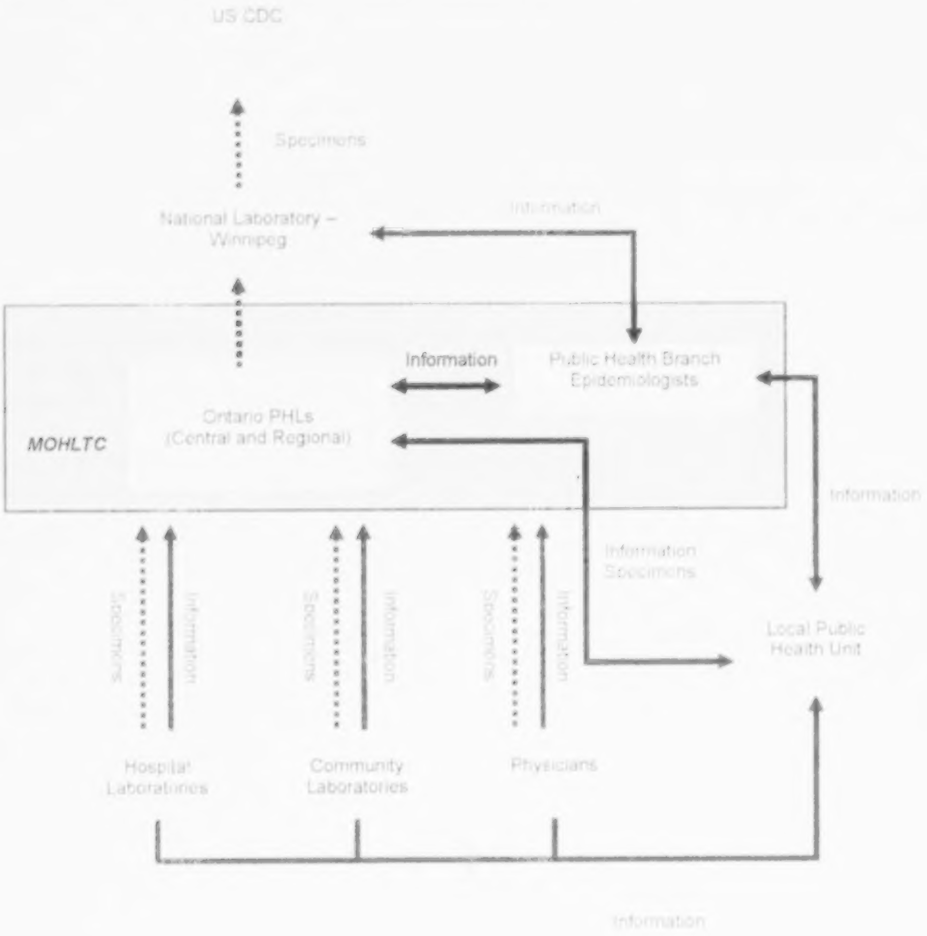
Current Ontario Public Health Laboratory Model


US CDC
Specimens
National Laboratory – Winnipeg
Information
Information
Public Health Branch Epidemiologists
MOHLTC
Ontario PHLs (Central and Regional)
Information
Information Specimens
Specimens
Information
Specimens
Information
Specimens
Information
Local Public Health Unit
Hospital Laboratories
Community Laboratories
Physicians
Information

3) *Partnerships with Academic Health Centres*

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- **Fostering a community of interest and knowledge**: Affiliate or partnership type models do not replace the need for core central public health lab capacity. But they have the potential to broaden the depth and range of expertise that the lab can draw upon. In its ongoing work, the Panel will address this issue and the possible options for Ontario in greater detail.

- **Potential for research partnerships and a vibrant environment for recruitment**: Linkages with academic institutions bring a range of potential opportunities that may serve the public health laboratories well. In an era when many skilled professionals are eager to maintain an involvement in academic health research, developing a vibrant and engaged scientific critical mass will, in the long term, rest partly on the ability to recruit and retain professionals. Creating effective and supported links with research for public health laboratory staff should, even in an era of fiscal restraint, be regarded as a necessity for building capacity, not a luxury.

- **The potential for surge capacity through affiliate organizations**: Ontario is blessed with some of the most advanced laboratory capacity in Canada at a number of the major Ontario hospitals. The National Advisory Committee clearly recognized this fact when they referenced the roles played by both Mount Sinai and the University Health Network and the Hospital for Sick Children labs in assisting during the SARS outbreaks. The Panel will be exploring the potential for creating more formal partnerships between Public Health laboratories and the hospital sector in the final report. It remains an area where we believe Ontario can draw upon expertise within the province to contribute greater weight to a national framework.

Public Health Staffing and Organization

In a public health system as complex and dispersed as Ontario's - covering a population mass comparable to some smaller European countries and operating a major public health laboratory- strong central capacity to lead and shape the system is vital. The nature of the skills required at the central level are as diverse as the challenges facing public health in the 21st Century. In this way, as an operational service, public health is clearly distinct from many of the functions carried out by the Ministry. Public health is one of the few direct health services that the Ministry provides to the people of Ontario.

Dr. Naylor and the National Advisory Committee have shone a spotlight on certain aspects of the limited public health capacity at the provincial level. The Committee was critical of the epidemiological and analytical capacity at the Public Health Division of the Ministry. The Panel's submissions and interviews have echoed this concern.

One public health physician was extremely clear in this regard: "The lack of outbreak response and control tools such as standardized and centralized line-listing of all cases involved in an outbreak,...mechanisms for shared access, the ability to generate key analytic products to aid in understanding and response, especially real-time epidemic curves. [This lack] was embarrassing, shameful and dangerous. This cannot be allowed to happen again! This will require mandate, capacity, training, standards, agreed-upon policies and procedures, and more leading edge information systems than public health presently possesses either provincially or regionally."

Other concerns emerged in interviews again reflecting the absence of sufficiently robust central capacity in place to manage an outbreak. These pertained to skill mix, recruitment and hiring difficulties, as well as tensions between the central Public Health Division and the field.

As Dr. Naylor and the National Committee noted, the challenges faced during SARS revealed four basic weaknesses: lack of information technology; lack of scientific/epidemiological capacity; confused lines of accountability; and lack of surge capacity.

In a number of these areas, the Panel has heard that the Public Health Division made several unsuccessful attempts to secure resources, particularly in the area of information technology. The Panel is also aware that as a result of the SARS experience, progress is being made in certain areas, such as improved epidemiological capacity and a better communicable disease information system.

In other areas, however, the challenges appear greater than simply funding. The high vacancy level that has existed in Public Health Division appears indicative of other potential problems. It is hard for us to say whether these problems are in the areas of competitive remuneration, skill shortages in certain fields, perceptions of public health as a career in the public service or bureaucratic barriers, such as ongoing staffing freezes. Therefore, the Panel suggests that a comprehensive external capacity review be undertaken of Public Health Division. By gauging what is in place now, what barriers are faced, and what challenges need to be overcome, Ontario will be far better positioned to know what needs to be in place and can start building toward that goal. The Panel strongly believes that this review should not be used to impede but rather to complement the strengthening and recruitment process currently under way.

Ideally, this review would be comparative and draw upon interviews, documentation and the experience of other jurisdictions in establishing and maintaining core central capacity in public health. This work is important to address not only what is in place now, but to identify what needs to be in place centrally for the province, regardless of structure.

While the Panel anticipates bringing forward more comprehensive recommendations on potential future models for public health capacity in Ontario, an external review of Public Health Division can only assist in providing direct and practical information to support whatever steps are taken to enhance public health renewal.

At the local level, the difficulty in recruiting and retaining qualified Medical Officers of Health and appropriately qualified staff for Ontario Public Health Units, has been a persistent issue for a number of years, particularly in rural areas. The Walkerton Inquiry was forceful on this issue.

Despite ongoing efforts by the province and municipalities themselves, the issue remains current. The Panel has heard that the problem is partly a symptom of the overall shortage of public health physicians – "an increasingly rare commodity," as one interviewee put it.

The Canadian Public Health Association has indeed identified this shortage as an increasing national problem:

> Health human resources are integral to public health; the shortages and limitations of the current workforce are many. The shortage of public health professionals including doctors, nurses and managers, in epidemiology, public health, infectious disease control and surveillance is problematic. Retention of current professionals in all areas, and recruitment of new professionals is key to the success of the public health approach. Funding and policy changes are required to deal with this critical human resource challenge.[17]

Senator Kirby also identified a core concern regarding the limited support for community medicine in many jurisdictions, "compared to other high-tech specialties in medicine," thereby constraining the supply of physicians who might choose to move into public health roles.[18] The Panel acknowledges this fact and recognizes the need for ongoing work to change the perception, remuneration, and promotion of community medicine as a career.

It has been suggested that consideration also be given to creating and implementing a public health equivalent to the Underserviced Area Program (UAP). This program provides supplementary incentives to practitioners to work in areas deemed by the Ministry to be underserviced in terms of per capita staffing physician ratios. While the UAP has certainly not solved the shortage of physicians in many areas, it is a vehicle that is already in place, and could potentially be modified to provide an additional incentive to clinicians prepared to serve in Public Health Units that face persistent difficulties in filling positions.

Another approach to strengthening capacity in the short term is for Ontario to examine what additional roles the federal field epidemiology program might play within the province. As has been pointed out to the panel, the federal field epidemiologist program may be worthy of further use and potential emulation by Ontario. These are addressed more fully in Health Human Resources strategies.

Accountability - Measuring Progress

The Panel members recognized - even before the submissions and interviews made the same point - that the vast majority of the problems identified in the SARS crisis actually pre-existed SARS, and had been highlighted in previous studies. Dr. Naylor has described this phenomenon as "Canada needing to learn the lessons today because it failed to learn them in the past."[19] This phrase is equally valid for Ontario.

How then is Ontario to ensure that it is not forced to repeat, yet again, those same experiences when the next crisis or outbreak? One component of the solution rests with monitoring and regular reporting on progress made in the area of public health to the legislature and to the public.

Senator Kirby, in his recent report, has provided a good model. He has clearly indicated the timeframe and deliverables to which the federal government should be held with regards to the implementation of the key aspects of the national report.

A Public Health Report Card, or annual performance report, concept has been raised with the Panel as an approach with considerable merit. Regular public reports could be made with key indicators specific to the public health sector, including progress made on staffing, information technology, facility-acquired infections, mandatory program compliance, and various measures of population health.

There are real opportunities to examine existing research consortiums such as the Hospital Report Card Project, the ICES Atlas series and others, to develop a rigorous and independent mechanism for providing information on progress in the realm of public health and the impacts, where measurable, over time on key health indicators. This approach would be compatible and should complement any broader work on health system performance measurement at either the national or local level.

Towards a Public Health Agency

In assessing the wealth of information that has come to the panel and attempting to come to clear forward-looking recommendations the Panel is convinced of the need for a new organizational model – a fulcrum around which the renewal process can cohere. In this regard, the Panel recommends the establishment of an Agency for Health Protection and Promotion. Such an agency would be an anchor and foundation to a renewed public health and infectious disease control system in Ontario, drawing together core provincial public health resources and newly creating a critical mass of expertise in facility based infection control.

In work to-date, the Panel sees the benefits of an operational agency (reporting directly to the legislature through the Chief Medical Officer of Health) in the following areas.

- Coordinated expertise in both public health and facility-based infection control. In our view, it is logical to establish a single body with a dedicated division of infection control. This co-housing of expertise has the potential to provide a supporting, monitoring, and training role in facility-based infection control for both public health, hospitals and other institutions, including long-term care facilities.

- Co-located responsibility, control, and expertise for both the public health laboratory system and the provincial requirements of surveillance, epidemiology, monitoring and compliance.

- While the creation of a federal agency is not a pre-requisite for the establishment of a provincial one, Ontario should clearly consider the benefits of designing its agency while the national agency is under development in order to maximize opportunities for synergy and collaboration.

Considerable conceptual and developmental work will be required to effectively operationalize this concept. The panel is undertaking a detailed examination of the available models to this end. In undertaking this work, the Panel is also aware of the critical need to ensure that any model developed does not wholly replace the need for some centralized public health capacity, voice, and awareness at the Ministry. For any agency of health protection to succeed, it will require an effective link to both the Ministry and the broader health sector – while having sufficient operational independence. It will also be essential that the Ministry retains a core public health policy and strategic capacity within the ministry as a point through which the new agency can intersect with broader ministry issues.

Recommendations

Health Protection and Promotion Agency

1. The Ministry should immediately proceed with developmental work to establish a Health Protection and Promotion Agency in Ontario. The Agency should be required to report annually to the legislature through the Chief Medical Officer of Health and include the following core components:

    a. The Ontario Public Health Laboratory.
    b. Relevant existing Public Health provincial resources.
    c. A Division of Infection Control, whose mandate would include research, training, monitoring and best practice dissemination.

    The Agency should also be designed to enable linkages with the proposed Canadian Public Health Agency, the proposed National Public Health Laboratory Network, and appropriate research centres.

Independence

2. The Ministry should immediately amend the *Health Protection and Promotion Act* to provide clear authorization to the Chief Medical Officer of Health to:

    a. report to the legislature
    b. issue public comment on matters of significant public health importance independently of the Minister of Health and Long-Term Care.

    Such a provision should be enacted at the earliest possible opportunity.

Public Health Human Resource Revitalization Strategy

3. It is recommended that Ontario immediately initiate discussions with the Association of Local Public Health Agencies (alPHa), Association of Municipalities of Ontario (AMO), and existing F/P/T processes, to design a Public Health Human Resource revitalization strategy. The strategy should contain the following components:

    a. The development, through the Ministry of Health and Long-Term Care and the Ministry of Training, Colleges and Universities, of an increased capacity for the education and training of public health professionals. This could include increasing enrollment numbers at educational institutions as well as increasing post-graduate training positions or residencies.
    b. The development and support of a provincially funded training and education program for existing public health staff, with a focus on

infection control. This should build upon the existing Public Health Research, Education and Development (PHRED) program. Special emphasis should be placed on promoting cross-training opportunities between public health, acute care, long-term care, and other sectors.

c. The development, in partnership with HRDC and educational institutions, of a comprehensive campaign to promote public health careers in Ontario.
d. The development of re-entry training positions in community medicine such that practitioners currently practicing in other specialties can become qualified to work in public health.
e. The development of bridge training programs intended to update the skills and qualifications of skilled individuals with previous public health experience. This should be offered together with incentives to recruit back such individuals currently practicing in other fields.
f. A review of recruitment and retention strategies for Medical Officers and Associate Medical Officers of Health, including remuneration.

The Ministry should provide a progress report on this strategy to the Minister by June 1, 2004.

Provincial/Municipal Funding

4. Ontario should immediately dedicate 100% provincial funding beyond March 31, 2004 for the 180 positions committed to Public Health Units as part of the Ontario SARS Short-Term Action Plan.

   Ontario should further develop an independent process and establish timelines for the establishment of 100% funding of all communicable disease programs in public health. This should be completed by December 31, 2004.

   All such funding should be conditional on the Public Health Units supporting re-deployment of these communicable disease resources in the event of a public health emergency, as part of constructing province-wide public health surge capacity.

5. Ontario should immediately re-structure the existing cost-sharing agreement for public health with the municipalities to move to between 75% and 100% provincial funding of public health. Programs, including communicable disease programs funded at 100% by the province should be protected at 100%.

   Implementation of the new cost-sharing agreement should be phased in within two to five years.

Public Health Units

6. The Ministry should review, in conjunction with the Medical Officers of Health, the Association of Local Public Health Units and the Association of Municipalities of Ontario, the existing number of public health agencies in the province. Within two years, the Ministry should act on the results of the review to consolidate the number of Public Health Units to between 20 and 25 units, retaining local presence through satellite offices.

Health Protection and Promotion Act – Compliance

7. The Ministry should immediately examine approaches to strengthen compliance with the *Health Protection and Promotion Act* and associated *Mandatory Health Programs and Services Guidelines*, in particular with regard to the resourcing and provision of mandatory health programs and services.

Public Health Division Capacity Review

8. The Ministry should immediately undertake a comprehensive external review of existing provincial Public Health Division capacity. The Ministry should act on recommendations arising from this review to revitalize provincial public health capacity within the context of public health renewal.

Performance Review for Public Health

9. Ontario should establish an annual performance report for public health in Ontario to be tabled to the legislature and disseminated to the public. This report should be prepared by appropriate third-party research organization body and should indicate the status of the following areas:

   a. Human resources
   b. Information technology
   c. Facility-acquired infections
   d. Mandatory program and service compliance
   e. Health of the population
   f. Central epidemiological capacity

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Chapter Two: Infection Control

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Introduction

The SARS outbreak highlighted a problem that has received far too little attention in the past decade, despite being raised as far back as December 1994 at the Lac Tremblant Declaration.[1] The problem is infectious disease control. Prior to the outbreak, many people within different parts of the healthcare sector, as well as the Ministry of Health and Long-Term Care, had a false sense of security with respect to infectious disease control. Certain infectious diseases received intense scrutiny by the broad healthcare sector over the past decade (for example, HIV and Hepatitis C), which led to significant systemic change in certain practices related to infectious disease control. However, outside of a handful of individuals in the area of infection control and public health, the issue of facility-acquired (nosocomial) infections was largely invisible. Infectious disease outbreaks have been largely concealed by the presumed effectiveness of antibiotics and the absence of effective mechanisms to identify and track facility-acquired infections. As a result, in many cases, healthcare facilities faced with a range of competing demands have placed less importance on infectious disease control and have demonstrated limited compliance with even basic prevention and control techniques, such as handwashing. This is exacerbated by the fact that infection control is invisible until an outbreak occurs.

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In recent years, funding pressures have further reduced the resources applied for infection control, as with other services that are often in the background of health care. This is evidenced by the sub-optimal level of infection control training, staffing, and accountability in place before the SARS outbreak. As one respondent commented, "SARS certainly illustrated the need for increased awareness of infectious diseases, and showed us all how quickly an entire health care system could be 'shut down'. It showed us how unprepared we are in our ability to contain and control not only new and emerging diseases, but those such as influenza and tuberculosis."

Training in infection control principles clearly has not been a priority in recent years and as a result most frontline healthcare workers were not well-equipped with the necessary knowledge to handle SARS when it hit. There is, the Panel has heard, a noted absence of infection control training within both facilities and institutions and within healthcare education programs. This problem is mirrored in the limited availability of courses for health workers to upgrade their skills to become infection control practitioners. For the purposes of this report, we are defining infection control practitioners as "physicians, [nurses] or other qualified individuals responsible for implementing and overseeing the policies and procedures followed by a health care facility to reduce the risk of [the spread of] infection [whether hospital or community-acquired] to patients and staff."[2] Infection control practitioners are also referred to as infection control professionals in some jurisdictions, although we have chosen to use the former in this Report.

Because SARS was so effectively transmitted in hospitals, many regard the outbreak as a cogent reminder of the need to better manage all facility-acquired infections. In fact, SARS is the tip of the iceberg of the largely unrecognized problem of facility-acquired infections. Furthermore, we cannot emphasize enough the extent and devastating impact of such infections, which are closely related to inadequate infection control practices.

In developed countries, about 5-10% of patients in acute care hospitals acquire an infection that was not present or incubating on admission.[3] In the United States, hospital-acquired infections are the second most frequent type of adverse incident occurring in hospitals - second only to medication errors.[4,5,6]

The precise rate of facility-acquired infection in Canada is not known...[but] based on US studies, it is estimated that there are 220,000 occurrences of facility-acquired infections in Canadian hospitals annually, resulting in excess of 8,000 deaths.

The precise rate of facility-acquired infection in Canada is not known, because these figures are not comprehensively reported to any central authority or body. Based on US studies, it is estimated that there are 220,000 occurrences of facility-acquired infections in Canadian hospitals annually, resulting in excess of 8,000 deaths.[7]

The number of occurrences appears to be on the increase, partly due to a surge in the number of antibiotic-resistant pathogens. For example, 440 identified cases of methicillin-resistant *Staphylococcus aureus* (MSRA) were found in 20 of the 21 Canadian hospitals and long-term care facilities studied in the first Canadian MSRA surveillance study, conducted in 1995 over an 18-month period.[8] More recent studies have shown that the rate of MSRA infections has increased 10-fold over the past decade.[9]

The impact of facility-acquired infections can be significant – prolonged illness, possible death, and the costs of extended hospital stays and associated treatment.[10,11] In the United States, for example, the Centers for Disease Control (CDC) estimated the annual cost of hospital-acquired infections to be $5 billion.[12] Although there are no published data on the total costs of facility-acquired infection in Canada, targeted studies suggest that the costs of these infections are similar. For example, according to one study, the annual costs associated with MRSA infections in Canadian hospitals are estimated to be between $42 to $59 million.[13]

While SARS was not solely a facility-acquired infection, the high risk for its transmission within the healthcare setting has highlighted and reinforced the need for lasting changes to infection control practices. This means ensuring that infection control programs within Ontario healthcare facilities are effective in reducing the risk of facility-acquired infection in patients, staff, and visitors through surveillance, prevention, control, education, and training.

The Panel is aware that an audit of existing infection control resources, policies, and practices (including sterilization and disinfection protocols for equipment) has recently been initiated in hospitals. However, the Panel believes that much more needs to be done on a formal and ongoing basis to ensure appropriate infection control in Ontario healthcare facilities, particularly in the area of standards and monitoring, facility design, as well as training and education.

Provincial Structure for Infection Control

Infectious disease is envisioned by the Panel as having a critical role in a new public health agency for Ontario, operating as one spoke of the wheel. How it should be organized and its various functions are critical issues that will be addressed in detail in our final report. What has become evident is the need for a provincial structure to support infection control resources, policies, and standards within hospitals and other healthcare facilities.

The Panel also heard that the current multi-layered and somewhat disjointed approach to infectious disease control presents real barriers to coordination; this approach involved planning regions, Public Health Units, and the Ministry. The consensus is that this model should be replaced by a regional model, with infection control expertise available regionally and supported centrally by a new public health agency. This model is consistent with the National Advisory Committee recommendation to create regional networks for infection control.

The Panel will seek input from providers and organizations to identify how best to operationalize the concept of a provincial structure for infection control and the relationship with regional networks. We will integrate this input and provide a more detailed discussion in our final report. At this point, however, the Panel anticipates that these regional infection control networks will need to have appropriate linkages with experts in hospitals, along with other healthcare facilities, relevant community settings, and Public Health Units. The networks also have a role in the ongoing monitoring of standards, and in ensuring that staff receive the necessary education and training.

Standards, Accreditation, and Monitoring

Introduction

During the SARS outbreak, most institutions adopted the infection control protocols recommended in the provincial directives; some institutions chose to take an even more cautious approach and implemented more stringent directives than were required for their facility; and others struggled with translating how to apply the specifics of the directives in their organization. However, over the longer term these new protocols have the potential to galvanize healthcare providers and organizations around the need for consistency in infection control approaches. In submissions to the Panel, healthcare providers and organizations at every level of the healthcare system identified as a current priority the development of clear standards for the 'new normal,' accompanied by continuous quality improvement initiatives including practice audits to ensure compliance. Post-SARS fatigue and the potential to revert back to old ways must be countered.

...healthcare providers and organizations at every level of the healthcare system identified as a current priority the development of clear standards for the 'new normal'...

Key Learnings

A need for consistency: Most acute healthcare facilities have infection control policies, and indeed, many of these facilities have updated their policies to address such threats as methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and Norwalk virus. However, because such policies are not based on any one standard or set of standards, their content often varies significantly between institutions.[14] Furthermore, acute healthcare providers indicated that during periods where there are no infectious disease outbreaks, many have not adhered to their infection control policies. This is due to a broad range of factors, including the low perceived risk, staffing shortages within infection control, and unclear responsibilities related to infection control assumed by healthcare workers that are traditionally not directly involved in infection control. Respondents cited the lack of a formal compliance-monitoring vehicle at the facility or provincial level as a predominant reason for poor adherence to infection control policies. If clear expectations are not set and supported centrally, we can only assume that it will simply be a matter of time before the situation will return to the pre-SARS status quo. This is clearly unacceptable. The Panel heard, therefore, that it is vitally important to remedy this and to place a renewed emphasis on surveillance and monitoring of infection control practices, in compliance with clearly articulated and enforceable standards. A culture of continuous quality improvement must permeate through infection control programs.

What could standards stipulate? As one respondent noted, "Infection control standards are required for hospitals and other healthcare facilities [and should] include surveillance, training, policies, procedures, outbreak management, research, epidemiology and audit." Accordingly, standards could stipulate several requirements, namely that:

- Each facility have an organized program of infection control.
- Each facility designate a minimum number of infection control practitioners within their institution based on national standards, and that these practitioners have clear responsibility for surveillance and outbreak management.
- The infection control program include sanitation practices, surveillance and outbreak management protocols, facility policies and procedures, as well as education to support these areas.
- There be a contingency plan in the event of an outbreak, including a process for early communication of the outbreak.

At a minimum, the Panel heard that infection control standards should apply across the province, although it would be preferable to have national standards. This is consistent with the recommendations made by both the Ontario SARS Scientific Advisory Committee (OSSAC) and the National Advisory Committee on SARS and Public Health. The National Advisory Committee called on the provincial government, healthcare providers, facilities, and stakeholders to work collaboratively with the Canadian Council on Health Services Accreditation (CCHSA) and other relevant accrediting bodies to develop pan-Canadian infection control standards.[15]

Such standards could potentially draw on numerous national and international guidelines that reflect best practices in the area of infection control. For example, guidelines have been developed by Health Canada, the Community and Hospital Infection Control Association (CHICA), the Canadian Infectious Disease Society (CIDS), the Association of Professionals in Infection Control and Epidemiology (APIC), the US Centers for Disease Control (CDC), and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

The Panel recognizes that the Ministry has recently established a task force to address this issue and endorses this as a welcome first step in developing comprehensive infection control standards. However, attention to infection control must move from being reactive and issue-driven to becoming ongoing in nature and consistent in its depth.

Broad coverage of standards: Some have suggested that protocols or standards for healthcare facilities "should be commonly known and respected across the entire healthcare continuum." That could potentially include hospitals, as well as physician's offices and community clinics, non-acute and long-term care facilities, and services that are privately operated and funded, such as those provided by dentists, chiropractors, and physiotherapists.

...it is equally important to enhance professional standards of practice for infection control...

We heard that it is equally important to enhance professional standards of practice for infection control, a task which falls within the responsibility of individual colleges that set standards for the various regulated health professions. As one respondent stated, what is needed is, "inclusion of infection control standards as part of all healthcare education and licensing requirements for professions."

The Panel endorses efforts at the regulatory college level to strengthen and harmonize existing infection control standards for health professionals and would also encourage the Ministry to actively support efforts to examine qualifications for entry to practice, and requirements for on-going professional development as potential vehicles for strengthening infection control awareness.

Promoting compliance: We heard that "facilities also need to more strongly enforce current infection control standards, which are often not followed." In short, standards that are not enforced are of limited value, and in order to be enforced they must be understood. Any standard must therefore be broadly disseminated and must have effective oversight mechanisms to ensure compliance. OSSAC has recommended that standards be enacted through regulation, giving them the force of law instead of simply voluntary guidelines. This approach might create a challenge in maintaining relevance as standards evolve over time, and should therefore be considered as one option among others. Another way to promote compliance is to ensure the "inclusion of assessment of infection control practice in performance evaluations, audits and reviews" at regular intervals. This could include a mechanism to set targets or benchmarks and measure against performance, building on existing mechanisms such as the Hospital Report Card.

Facility Design

Introduction

SARS clearly illustrates the importance of physical plant design in controlling and managing infectious disease outbreaks. Most healthcare facilities in Ontario are designed to minimize the spread of infection to some degree. Yet SARS clearly demonstrated that current approaches to structural design fall short of what is truly optimal in an infectious disease outbreak. In many instances, facility design posed a barrier to controlling the spread of infection; for example, inadequate numbers of sinks in patient areas, open concept wards, limited space for donning and removing personal protective equipment. In other cases, emergency rooms and critical care units lacked sufficient isolation facilities to provide medical support to infected patients in a protected environment.

...we need to carefully rethink current approaches to healthcare facility design, to ensure that healthcare facilities are prepared to deal not only with future SARS outbreaks, but other infectious diseases that may be transmitted by air, droplet, bodily fluids, or direct contact.

All of these issues suggest that we need to carefully rethink current approaches to healthcare facility design, to ensure that healthcare facilities are prepared to deal not only with future SARS outbreaks, but other infectious diseases that may be transmitted by air, droplet, bodily fluids, or direct contact. The need to ensure that facility design addresses the challenges of potential chemical or biological contamination is equally important.

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In the words of one respondent, "SARS underscored how ill prepared we are to deal with communicable respiratory disease. With pandemic influenza a virtual certainty in our lifetime, the provincial authorities have got to take this situation seriously...After an infectious agent is circulating, there is neither the time nor resources to decide what ought to occur in the planning stages of response."

Key Learnings

Infection control design standards: We heard from the submissions that Ontario lacks a cohesive framework of infection control standards for the design and construction of healthcare facilities. Although new facilities are required to meet the standards of the Ontario *Building Code Act* (S.O. 1992, c. 23) and relevant municipal bylaws, there are no specific standards regarding appropriate infection control.

That is not to say that there are no standards to draw from. Beyond provincial and municipal laws, several expert sources provide guidance on appropriate facility design to ensure effective infection control. For example, Health Canada and the Canadian Standards Association have issued several guidelines relating to infection control in healthcare facilities. In addition, architectural firms that are designing healthcare facilities routinely seek guidance from professional and industry standards. Moreover, as a matter of practice, architects work with facility project design teams in the functional planning phase to address issues of infection control. This approach has much merit and should be formalized as a required best practice for all new facility construction.

The SARS experience certainly suggests that a far more comprehensive and consistent approach may be warranted to give infection control due consideration in healthcare facility design, particularly with respect to emergency departments. For example, as one respondent observed, what is needed is "a clear guideline for Emergency Room renovation and design that incorporates a minimum space allocation, a minimum number of negatives air pressure spaces, etc. [which]... would then become the expected template to assist facilities to reach a reasonable design."

We heard that having a more consistent approach to infection control design would ensure that all hospital capital development, functional plans, program plans, design drawings, and specifications are reviewed to ensure that adequate infection control specifications are incorporated. That includes establishing minimum standards; supporting regulatory oversight to ensure compliance; and ensuring the involvement of infection control staff at the functional programming and planning stages of construction projects.

Negative pressure rooms and dedicated isolation rooms: The capacity for effective infection control varies widely from institution to institution. Healthcare providers and facilities were almost unanimous in their view of the difficulties that structural design posed in containing the outbreak, protecting staff, and caring for SARS patients. However, the Panel cautions against over-emphasizing the significance of negative pressure rooms and isolation rooms. There may be real disadvantages in certain circumstances in relation to patient care, as evidenced by a recent American study. This study demonstrated that isolating patients has side-effects and can, in some instances, be detrimental.[16] Specifically, it indicated that patients who were isolated as a precaution for infection control experience more preventable adverse events, express greater dissatisfaction with their treatment, and have less documented care. Understandably, however, submissions made to the Panel overwhelmingly pointed to the inadequate number of negative pressure rooms and dedicated isolation rooms as a major impediment in managing SARS.

Healthcare providers and facilities were almost unanimous in their view of the difficulties that structural design posed in containing the outbreak, protecting staff, and caring for SARS patients.

As one submission noted, "Essentially, if a patient has a small likelihood of having, for instance, Tuberculosis or a transmissible pneumonia, including SARS pneumonia, they should automatically be able to find a negative pressure room. This takes the guesswork out of infection control. In the past, our infection control department has been in the position of 'playing God,' trying to decide, based on a limited amount of information as the patient comes to the emergency room, whether that patient should or should not have a negative pressure room. A marked improvement in such capability would remove the need for such decisions." The National Advisory Committee agreed, stating that each province should ensure that hospitals have sufficient negative pressure and isolation rooms. It remains to be determined precisely what that appropriate number is. Regardless of SARS, a sufficient supply and distribution of negative pressure rooms is a wise precaution, which would serve Ontario well in handling potential future airborne infectious diseases.

Organizations also reported that although efforts were made to meet the requirement for negative pressure rooms, many were simply not equipped to provide them. Unlike isolation rooms, negative pressure rooms were not required in the past; therefore, many organizations did not have the internal expertise to set up negative pressure rooms, nor did they know what skill sets were required to establish them – for example, whether engineers were needed, or whether respiratory therapists were more appropriately trained to create the environment.[17]

As the science surrounding SARS evolves, it appears to become increasingly more evident that it is a droplet-spread disease, not an airborne disease. This reduces the need for negative pressure rooms; however, it does not reduce the need to be prepared for the next infectious disease outbreak. As a result, we are recommending that negative pressure rooms be available, but encourage a cautious and evidence-based approach to determining the number of rooms required.

Emergency departments: Another critical physical barrier to managing SARS identified in submissions was the 'open concept' design commonly used in hospitals, particularly in emergency departments. The size of the rooms, the existence of alternate entrances and paths for infected patients, the presence of patients in hallways, the inability to separately triage patients, the resulting co-mingling of potentially infected patients with non-infected patients - all breached basic and necessary infectious disease precautions, and beg re-examination as a result of SARS.

One respondent offered this succinct analysis of the problem: "Most hospital emergency departments are inadequately designed to contain the spread of infectious diseases. Triage rooms should be closed off, with high volumes of air flow (ideally negative pressure). The use of a glass divider to allow triage staff to interview patients without wearing protective equipment would be useful. Waiting rooms tend to be very open - there usually is no provision for patient who require segregation isolation."

...the long-standing problem of overcrowding in emergency departments posed considerable difficulties, both in terms of capacity and effectiveness of infection control measures.

It must also be acknowledged that the long-standing problem of overcrowding in emergency departments posed considerable difficulties, both in terms of capacity and effectiveness of infection control measures. While efforts were made during SARS to free up beds, by rapidly transferring Alternative Level of Care (ALC) patients in hospitals to long-term care facilities, lack of capacity and overcrowding remains a persistent problem for most hospitals. Because the next outbreak might involve mass casualties or a sudden increase in demand for clinical or ward capacity, the Panel recognizes the importance of finding more sustainable solutions.

Recognizing the challenges that were encountered in using the ALC transfer process, we remain interested in improving and formalizing its use, while retaining the right of patient choice, as a mechanism to create additional capacity in the healthcare system in times of critical system need.

Although we recognize the breadth and complexity of this issue and do not attempt to solve the problem, we will be providing further comment in the final report on measures that could be considered when faced with this need.

Other physical design impediments: Similarly, concerns were raised about the risks posed by multiple entrances, and the inability to monitor and control these and other areas that are accessible to the public. Other physical design impediments to managing SARS included poor air control, lack of storage for protective gear, and insufficient handwashing stations. Possible solutions to physical design problems include separating inpatient, outpatient and commercial services where viable, and separating the 'mission-critical' departments and access to them. The Panel was also told that healthcare facilities could reduce the number of entry points into the facility and control access to them. And, ideally, facilities should create adequate individual space per patient and apply occupancy levels for inpatient beds that provide sufficient flexibility to allow emergency patients to be admitted when required.

The Panel heard that it is critical to identify hospital physical plant design barriers to effective infection control, and to develop an implementation plan for their removal within a specified period of time. The Panel also learned that consideration should be given to developing provincial standards for construction and retrofitting healthcare facilities consistent with effective infection control management.

Given what the Panel has heard to date respecting the importance of physical design to infection control, it will continue to examine these issues in some detail, with a view to providing recommendations in the final report.

Training and Orientation

Introduction

During SARS, it became apparent that many healthcare workers had limited up-to-date training and background knowledge in the principles of infection control, including the proper use of personal protective equipment. This concern resounded throughout the submissions made to the Panel. Such training, we heard, must be made accessible to *all* frontline workers through a variety of vehicles and on a variety of levels. This includes infection control training as part of workplace orientation, regular continuing education, and formalized training programs for infection control practitioners offered at educational institutions. The reality of the number of hospital-acquired infections clearly demonstrates that healthcare

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is not a risk-free profession, nor has it ever been. Given the potential for infectious disease outbreaks in the future, education and support for healthcare workers in managing infection risks must become a top priority.

Key Learnings

...education and support for healthcare workers in managing infection risks must become a top priority.

Universal training: The Panel heard that infection control training must become a part of workplace orientation for healthcare workers. As one respondent stated, concrete practical steps that could be undertaken right away include "mandatory infection control education including specific techniques such as gloving, gowning and masking procedures as part of orientation for all new staff (including physicians) to healthcare facilities." Providing training in basic principles of infection control in the workplace orientation process would help ensure consistency and universality. As with all aspects of healthcare, knowledge about infectious diseases changes rapidly and therefore needs to be rapidly communicated to healthcare workers. Healthcare facilities and organizations should implement methods to ensure that new and critical information is transmitted in a timely way to healthcare providers as part of a continuing education process, and the Ministry should be supportive of such efforts. Any such educational initiatives should be universally available to and accessible by all personnel, and should be modifiable and customized to different healthcare providers' roles within the facility or organization.

Training across all groups and sectors: Many submissions to the Panel urged that infection control training should reach more than healthcare professionals such as nurses and physicians, and extend to other groups and other sectors. Groups include housekeeping, volunteers, and students; sectors include acute care hospitals, long-term care facilities, emergency medical services, and community agencies. It is particularly important that public health personnel receive training in infection control, in both community and hospital settings depending on the setting where the person works. As one respondent stated, "Education on infection control to all healthcare workers, not just those hospital-based, is warranted."

In addition, the Panel heard that infection control teams within facilities and organizations should include the expertise of healthcare workers from different disciplines. As one example, respiratory therapists could be effective members of an infection control team and therefore should be given infection control training according to the role they may play on the team.

Need for accountability: Many submissions advocated that an accountability mechanism should be part of any education process. Some suggested that infection control should be a mandatory component of workplace training, similar to that in place for the Workplace Hazardous Materials Information Service (WHMIS). Others suggested annual testing, or incorporating infection control compliance into performance reviews. Still others suggested that infection control training could be tied to professional regulatory colleges and associations, perhaps as part of the licensing process. This could facilitate more consistent infection control education for professionals, such as family physicians and community pharmacists, who are not associated with an institution or facility.

Set standards for infection control education: The Panel heard about the need to establish standards in infection control education. Currently, many larger healthcare facilities have established internal standards to educate some or all of their staff. However, there are no mechanisms to integrate these facility-specific standards presently; therefore, there is no method of determining or assuring that the standards adopted by one facility are congruous with those of another. Broader standards must be developed, whether on a regional, provincial or national level. These standards must encompass the core competencies in infection control required by each healthcare profession and specialty or worker group, and those required in each healthcare sector such as acute care, long-term care and community care.

The concept of developing standardized educational platforms was proposed to us, to be used by facilities and organizations to carry out infection control training. These platforms should incorporate and reflect the established educational standards noted above. Possible tools could include standardized manuals, electronic materials, as well as core information sheets on specific infection control principles that could be available on hospital wards or in clinics. These standardized educational materials could be developed as part of the mandate of the Health Protection and Promotion Agency in collaboration with professional associations or regulatory bodies.

Shortage of human resources: The critical shortage of infection control practitioners became painfully evident across all sectors of health care during SARS. Infection control practitioners are charged with implementing and administering all aspects of an infection control program, including providing training in infection control principles. In 1985, the CDC recommended that there be a minimum of one infection control practitioner for every 250 acute care beds.[18] In 2001, the Canadian Infection Prevention and Control Alliance, an initiative of Health Canada, reduced this recommended ratio to one practitioner per 150-175 acute care beds.[19] In 2002, the Association for Professionals in Infection Control and Epidemiology further reduced the ratio to 1 practitioner per 100 to 120 occupied beds.[20] Recent research has shown that the vast majority of acute care facilities do not meet the 2001 standard[21] and almost half do not even meet the now-obsolete 1985 standard. Part of this deficiency is related to the overall shortage of healthcare workers in Ontario, which is addressed in a subsequent chapter, and part is related to a lack of available educational opportunities for infection control practitioners, as discussed below.

Recent research has shown that the vast majority of acute care facilities do not meet the 2001 standards [for the ratio of infection control practitioners to acute care beds].

Availability and accessibility of formal education programs in infection control: The Panel heard that formal infection control courses are virtually non-existent in Canada. These must be made accessible to all existing staff acting as infection control practitioners, and must be made more available to those healthcare professionals seeking to upgrade their skills to be able to function as qualified infection control practitioners. This must include persons working in the public health domain. The only recognized courses currently in place are an 80-hour, on-site certificate course held at Centennial College in Toronto, and a 20-week, on-line credit course offered through the University of British Columbia.

The Toronto-based program was developed and is endorsed by the Community and Hospital Infection Control Association (CHICA). It is presently fully booked well into the future, but only runs twice per year primarily due to resource constraints. With minimal additional funding, and additional qualified human resources, the Centennial College program could be run on a more continuous basis. The additional funding should include compensation for facilities, for the time involved by their staff who are seconded to be instructors for an infection control course. The organizers of this course also hope to provide an on-line, self-learning version in the near future, but this too is subject to funding and staffing.

Furthermore, mechanisms should be put in place to reimburse healthcare workers who attend infection control courses, to cover the costs of tuition, books, and accommodation, to ensure maximum accessibility to these courses. These mechanisms could include grants and bursaries, such as those presently available through the Nursing Education Initiative, a program funded through the Ministry and administered jointly by the Registered Nurses Association of Ontario and the Registered Practical Nurses Association of Ontario.

As the Panel heard, a vehicle to increase the availability of infection control training through distance learning might be the Northern Ontario Remote Telecommunications Health Network (also known as the NORTH Network). This telemedicine project uses live two-way television to diagnose and treat people in more remote parts of Ontario. The technology could be applied to educational initiatives through live videoconferencing, to allow a number of sites in rural and northern Ontario direct access to infection control training.

Targeted funding: Many of the suggestions concerning increased infection control educational opportunities – whether through orientation, continuing education, or formal courses – noted the need to provide targeted funding. In the words of one respondent, "Increase the budget for infection control and allocate the funding strictly to infection control, not to the global budget." Single source initiatives, such as the CHICA/ Centennial College course, could be funded through the sponsoring organization. Education programs created within facilities or organizations should receive partial development and support funding from the Ministry, in order to avoid that these programs fall under global budgets and eventually get dropped because perceived 'higher priority' areas swallow up funds ostensibly intended for infection control education.

Lack of educators: The Panel further heard that the number of experienced infection control practitioners is grossly inadequate to provide for all of the educational requirements in infection control. Clinical practitioners are in a good position to provide frontline training, as they have the requisite background education, as well as intimate knowledge of the needs of frontline workers. One acute care hospital respondent appropriately asked, "Why is Canada not using all experienced ICPs to help out educating nurses to become ICPs?" The Panel agrees that existing infection control practitioners must be used efficiently as an educational resource, both as teachers and mentors. A 'train the trainer' mentality should be fostered. In this way, staffs in facilities and organizations that do not have the benefit of experienced practitioners as part of their workforce can themselves become informed educators. In addition, this will enhance the ability of facilities and organizations to educate their frontline staff in infection control principles. As an example, infection control practitioners in one acute care hospital trained personnel from each unit and area in the hospital; these persons then act as educators to the frontline staff within their unit or area. This 'train the trainer' approach will require enhanced resources and commitment of time and could fit under the mandate of the infection control component of a new Health Protection and Promotion Agency.

Furthermore, creating higher levels of educational opportunities should also be considered; for example, programs leading to an undergraduate or graduate degree specific to infection control. No such program presently exists in Canada. This would then create a human resource base for research and academic activities.

Certification: The Panel heard that a mechanism is needed to ensure a minimum standard of competence for infection control practitioners. In the words of one respondent, "There should be some minimum educational preparation and certification for infection control practitioners." Once this standard has been reached, these professionals should then be paid commensurate with their level of specialty training or experience.

Certification is presently available for infection control practitioners in the form of a comprehensive examination developed by the Certification Board for Infection Control and Epidemiology (CBIC), the independent credentialing arm of the Association for Practitioners in Infection Control (APIC). Infection control practitioners who are certified are authorized and encouraged to use the internationally recognized initials CIC® after their names and in their titles. Initial certification is good for five years after which the successful completion of re-certification exams extend certification at five-year intervals.[22] The currently available CHICA/ Centennial College course in infection control provides the requisite knowledge base to proceed toward writing the CBIC examination; however, two years of practical experience in infection control is also required before applying for certification.

University and college curricula: Submissions to the Panel noted the lack of standardized infection control training in the curricula of universities and colleges that offer healthcare programs, including post-graduate residency programs and clinical placements. As a result, students and new graduates are entering the healthcare sector unaware of proper infection control practices. Yet instilling infection control principles early on in the education of healthcare workers is key to ensuring that they become part of the healthcare culture. This could be achieved by integrating infection control training modules into all relevant curricula in academic and clinical programs, and making the successful completion of appropriate examinations necessary for graduation. As one respondent stated "Training programs (nursing, medical school) must include infection control in their curricula, and should make it a requirement of graduation to demonstrate that trainees understand and can follow these practices."

Funding

The Panel is aware of the inherent costs in operating infection control programs within facilities and organizations, including the cost of necessary human resources such as infection control practitioners and infectious disease physicians. Targeted funding is required to facilitate the required staffing and appropriate functioning of infection control programs. Examples of such funding could include the creation of a priority program for hospital infection control services in Ontario or the development of an alternate regional funding model.

Targeted funding is required to facilitate the required staffing and appropriate functioning of infection control programs.

Recommendations

Regional Infection Control Networks

10. The Ministry should establish a process to develop Regional Infection Control networks across Ontario, with a designated hospital and Public Health Unit as joint leads in the development process. The networks should include but not be limited to Public Health Units, hospital infection control practitioners, Emergency Health Services, long-term care, and community-based healthcare providers.

Standards, Accreditation and Monitoring

11. The Ministry should immediately establish a standing Provincial Infection Control Committee that would report to the Chief Medical Officer of Health. The Committee would have the following functions:

    a. Supervise audits already underway of hospital infection control policies, programs and resources, and undertake additional audits in remaining Ontario healthcare facilities and organizations, to be completed by the summer, 2004.
    b. Informed by the results of these infection control audits, develop comprehensive provincial infection control standards for all healthcare facilities in Ontario, including acute and non-acute care hospitals, long-term care facilities, and primary care/community settings. Guidelines should be completed by October 31, 2004.
    c. Develop standards in collaboration with Health Canada.
    d. Develop appropriate mechanisms to ensure compliance for both existing infection control standards and new comprehensive provincial infection control standards.

12. The Ministry, together with the Provincial Infection Control Committee, and in conjunction with the Ontario Hospital Association, the Institute for Clinical Evaluative Sciences (ICES), and the Community and Hospital Infection Control Association, should develop core indicators for monitoring facility-acquired infections. This data should be reported as part of the annual status report on public health.

Facility Design

13. To ensure the appropriate supply and distribution of negative pressure rooms between and within hospitals, the Ministry should immediately undertake an independent evidence-based needs assessment, reporting back to the Minister by March 1, 2004. Informed by the results of this assessment, the Ministry must ensure that there is a sufficient supply of negative pressure rooms on a regional basis.

14. The Ministry must initiate a collaborative process with the Ontario Hospital Association to identify hospital physical plant barriers to effective infection control and develop a multi-year implementation plan for their removal. Emergency rooms should be examined as a first priority, to be followed by intensive care units and wards.

Training and Orientation

15. The Ministry, in conjunction with the Ministry of Training, Colleges and Universities, should ensure adequate funding for the expansion of existing courses in infection control so that they can be made more widely available and accessible to all health professionals. This funding should encompass the:

    a. development of an online format for the existing course
    b. development of distance education initiatives
    c. provision of adequate reimbursement for the costs of attending or participating in such a course.

    Such funding should be in place April 1, 2004.

16. The Ministry must immediately develop strategies to achieve a minimum target of one infection control practitioner per 250 acute care and long-term care beds, and to work toward achieving a target of one infection control practitioner per 120 acute care and long-term care beds within three years. These strategies must include mechanisms for recruitment and retention of infection control practitioners.

17. The Ministry should support the development of 'train the trainer' initiatives by providing adequate funding to allow existing experienced and qualified infection control practitioners to act as educators of other healthcare professionals in infection control principles. The necessary level of such funding should be determined and made available by April 1, 2004.

18. The Ministry should actively engage and support regulatory bodies and professional associations in their review and updating of standards for the infection control education and maintenance of core competencies of all healthcare workers. The Ministry should also work to develop standardized educational programs that reflect these principles. The development of such standards should be complete by June 30, 2004.

19. The Ministry, the Ministry of Training, Colleges and Universities, the Council of Faculties of Medicine, the Canadian Association of Schools of Nursing, and other relevant bodies should work together to define core curricular elements of infection control education for all healthcare

education programs and begin steps to establish these elements within such programs. The Ministry should establish a working body to accomplish these goals by February 1, 2004, and curricular outlines should be in place by June 30, 2004.

Funding of Infection Control Programs

20. The Ministry, in collaboration with the Ontario Hospital Association, the Ontario Long Term Care Association, and the Ontario Association for Non-Profit Homes and Services for Seniors, should develop mechanisms to provide targeted funding for infection control programs within facilities and organizations, such as the development of a hospital Priority Program for infection control. This funding should provide for necessary human resources, such as infection control practitioners and infectious disease specialists. A status report on the development of these mechanisms should be provided to the Minister by June 30, 2004.

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Chapter Three: Emergency Preparedness

Chapter Three: Emergency Preparedness

Introduction

The Panel's work is not to prepare for the last crisis. Rather, our job is to provide advice to assist in making sure that the Ontario health system is as ready and as equipped as possible for the next crisis, whether it resembles SARS or not.

SARS was not the pandemic influenza outbreak that many have feared; indeed, in light of what is increasingly becoming known about SARS, it is likely several orders of magnitude lower in terms of overall risk to the population. SARS has, however, taught the healthcare system a great deal about vulnerability, preparedness, and the need for far greater emergency planning within the sector if future risks of greater magnitude are to be effectively managed.

Concern and investment in emergency preparedness in general have naturally grown over the last few years in the aftermath of the 9/11 terrorist attacks. Subsequent anthrax scares and fears around bioterrorism have further illustrated that emergency planning has to be seen as a task involving public health officials. The challenge for the broader healthcare sector is to move from a mindset that sees emergencies as external events that demand a clinical response, to being a sector that can respond to an emergency even while its own operations are directly impacted by the event.

If anything is to be learned from SARS it is that the health sector must have the capacity to both effectively protect itself from and respond to emergencies that impact the sector as well as fill its traditional role of responding to external crises and providing care to others.

At the national level the Panel acknowledges that there is indeed work underway. In October 2001, the Federal/Provincial/Territorial (F/P/T) Deputy Ministers of Health created a Special Task Force on Emergency Preparedness and Response to strengthen emergency preparedness and response capacity in the health sector across Canada. Health Canada's Centre for Emergency Preparedness and Response (CEPR) is working with the Task Force in a number of areas, including the development of a Canadian pandemic influenza plan and refinement of the smallpox contingency plan.

Work is also underway at the provincial and local levels. Provincial governments and Public Health Units across the country maintain and are developing plans for a number of specific health threats. In the aftermath of SARS, the Panel heard that many professional associations and healthcare facilities are also reviewing and updating their existing emergency and contingency plans. That said, there is still a clear shortfall between what has been done to date and what needs to be in place.

The Panel heard repeatedly, from interview participants and submissions, that the resources to consolidate the work that agencies and institutions are devoting to preparedness and getting ready for future infectious disease outbreaks are not adequate. Equally important, the Panel has heard that these individual profession-specific or institution-specific efforts need to be harnessed and coordinated if they are to be effective. While Ontario healthcare providers lack dedicated resources for emergency preparedness, they especially lack a coordinated framework for health sector emergency response – part of a broader whole of emergency response. Addressing the need for greater guidance and coherence is therefore just as significant as the absence of dedicated resources.

Public health...must also be positioned, resourced, and sufficiently linked to support any broader, health sector-wide response to emergencies that threaten the health of the public on a larger scale.

While emergency preparedness in the broader health sector must cover many areas, ensuring readiness for infectious disease outbreaks must continue to remain a high priority on a fairly long list. Public health must be able to effectively manage the local day-to-day logistics of infectious disease outbreaks; they must also be positioned, resourced, and sufficiently linked to support any broader, health sector-wide response to emergencies that threaten the health of the public on a larger scale. Future events may touch on far broader aspects of the health system and emergency response system than did SARS. At a minimum, health sector emergency preparedness includes the following areas:

- Developing, maintaining, and testing of a generic response plan for infectious disease outbreaks and other health emergencies. In addition, developing, maintaining, and testing of contingency plans for specific public health threats, including pandemic influenza and smallpox.

- Ensuring coordination of health sector emergency preparedness, response, and recovery activities in conjunction with broader emergency planning.

- Ensuring there are emergency management structures in place for public health emergencies, including alert systems, personnel and provisions, and facilities.
- Training and education related to prevention, response, and recovery.

SARS revealed that we were not ready for a major infectious disease outbreak. Few of the above measures were in place in sufficient depth at the provincial level. Moreover, those measures that were in place were not necessarily part of the day-to-day functioning of either the Ministry or the field.

We have no way of knowing what the next health emergency may look like. However, enabling the health sector to effectively carry out its functions as one component of a major emergency response will require significantly greater pre-planning, coordination, and capacity than was in place when SARS arrived in Ontario.

Key Learnings

Not Enough Preparation

The level of preparedness for the SARS outbreak varied among levels of government, and across health units and organizations. The Panel heard that several Public Health Units had emergency response plans in place, and many used elements of their pandemic influenza plans during the SARS outbreak. In addition, Public Health Units that had in place existing relationships with other providers in the healthcare system were well positioned to build an effective response.

These relationships and plans show the value of preparedness activities, but these were of limited use outside of local areas without strong links to the broader response effort.

Like some Public Health Units, Health Canada and the F/P/T Network on Emergency Preparedness and Response were working on several planning initiatives to prepare for public health emergencies. Examples include the National Smallpox Contingency Plan and the Pandemic Influenza Plan. Health Canada adapted relevant components from the Pandemic Plan during the SARS outbreaks, and deployed a small number of staff to the Toronto area (GTA).

The Ministry and the provincial government both had emergency response plans. However, the Ministry had done little recent planning beyond the basic emergency plan. The Ministry was doing sporadic work on pandemic and smallpox contingency plans, but this work was not yet disseminated broadly when SARS hit. The National Advisory Committee indicated that SARS exceeded the response capacity of the Ministry's Public Health Division; this was also heard by the Panel at interviews and in the submissions.

There was no emergency plan that the Ministry or healthcare sector could easily apply. There was no off-the-shelf plan to assist with a disease for which little was known internationally; this is accepted by the Panel. The Panel also accepts the point that, as will likely be the case in future emergencies where what is not known exceeds what is, a narrow pre-determined blueprint will rapidly lose relevance in the face of unfolding events. If the relationships, structures, and processes are not in place to allow flexibility and a degree of agility in responding to the specifics of any given crisis, we will still face immense challenges even with the best of plans.

> **[We] recognize the effort and commitment of everyone who worked to contain the spread of SARS...The fact that they [healthcare workers] did this while ill-equipped and without clear guidance is a testament to their skills and dedication.**

Recognizing this, it is fair to say that the basic scaffolding of emergency preparedness – namely, the protocols, structures, networks, infrastructure, and technology supports – in the health sector and at the Ministry was extremely weak. While the absence of the scaffolding was the most significant marker of our vulnerability, our greatest opportunity for change is perhaps ensuring that it is constructed solidly and tested in the future.

The Panel recognizes the effort and commitment of everyone who worked to contain the spread of SARS – at the Ministry, the Provincial Operations Centre (POC), and SARS Operations Centre (SOC); those who cared for individuals and their families who were directly affected by SARS; healthcare providers who worked 18-hour days, and who gave up time with their own families, and bore the exhaustion and stress without complaint – were crucial to containing SARS. The fact that they did this while ill-equipped and without clear guidance is a testament to their skills and dedication. But, without adequate structures and supports, the SARS response was described by the National Report as "a collection of isolated clusters of valiant efforts."

The challenge for the Ministry in the future, therefore, is to view emergency preparedness not first and foremost as a bureaucratic or theoretical requirement to be juxtaposed to the enormous day-to-day pressures of managing the health system, but as a core business requirement.

The Ontario health system is an industry, which costs over $27 billion annually, employs tens of thousands of people, and serves the health needs of over 12 million people. The Ministry must recognize clearly that, even facing the tremendous financial challenges that it does, the level of resourcing, attention, and support for emergency preparedness must better reflect the size, complexity, and importance of the sector to Ontario and to Canada.

In order to move forward, we must identify some of the barriers we faced, and sketch out the steps for change.

A Lack of Clarity

Without some of the necessary scaffolding and structures in place at the Ministry to respond in a highly coordinated manner to a communicable disease emergency, the province essentially had to develop the plan on a day-to-day basis (a problem compounded by the nature of the disease). At the same time, the Ministry had to work on constructing some of the very basic tools and vehicles to communicate, to analyze, receive, and disseminate the evolving science of the disease.

In the words of OSSAC, we "built the boat while at sea in the middle of a storm."

In the words of OSSAC, we "built the boat while at sea in the middle of a storm." The overall result of attempting to create structures and processes at the Ministry level, in the midst of an outbreak that had soon escalated into an international news event, was an ongoing lack of clarity over roles and responsibilities among governments, agencies, and institutions. Lines of authority, reporting, and communication were all unclear.

According to one submission "there was ongoing confusion and lack of clarity as to the respective roles and responsibilities of the Premier, the Minister of Health, and especially the Commissioners of Public Health and Public Safety. Given the likelihood of widespread emerging infectious disease outbreaks in the future, such as pandemic influenza or bioterrorism, these issues need urgent clarification and specification."

The Province possesses, and the Ministry was highly dependent on, the centralized capacity of the POC – the corporate centre for coordination of emergency response. The POC had effectively responded to past events such as the ice storm.

Many submissions and respondents have stated that the POC structure alone was the wrong model for responding to an infectious disease outbreak. Without a specific plan for outbreaks within the Ministry or for the province, decision makers went with whatever generic emergency model was in place. At times, these models seemed better suited to a fire or flood or the 1998 ice storm than a health crisis. Generic emergency response protocols will often call for a rapid multi-sectoral deployment for the coordination of a response. Hence, at both the provincial level and to some extent the municipal level, police, fire, and broader sectors were linked in to emergency response centres – only to find that the nature of this emergency called upon a skill-set and an expertise that was not at the core of their organizations.

The above observation is not meant to suggest the lack of importance of effective local or provincial emergency coordination capacity. Far from it: It is to suggest that for the Ministry and for the health sector in general, improved coordination, planning, and capacity within the sector are a prerequisite for effective participation in either a health-specific emergency or a more general emergency with diverse health impacts.

Hospitals themselves also drew on what was in place to mobilize and respond to the outbreak relying heavily on the existing Code Orange, a broadly understood alert code in the acute care sector that activates communications lines and staffing approaches. Using Code Orange made perfect sense, because little else appeared to fit. However, as we discuss later, Code Orange was in some ways an unsuitable code for SARS and is an area that requires broader work.

The lack of a unifying emergency infrastructure that could reach all healthcare providers, the Panel heard, resulted in wide groups of healthcare providers being poorly served and assisted during the outbreak, especially in the early stages. In this regard, the Panel heard that the community laboratories and community-based service providers were initially peripheral to response efforts, and the efforts to communicate with them, for a range of reasons, were not effective. This aspect of criticism is easy for us to lose sight of given the subsequent facts showing that SARS was largely a hospital-based disease. We must recall that at the outset, we did not know whether or not SARS could rapidly spread within the community – indeed the founding assumption was that it could. The next disease may be far less forgiving, and the need for effective, timely, and transparent vehicles to reach all health sectors will be essential to our capacity to respond.

In addition, the Panel heard that a number of Public Health Units felt under-utilized and cut-off from the response structure. In part, this appears to stem from a lack of clarity of roles centrally, but also from a lack of familiarity of the hospital sector terrain at some health units, and how best to proceed in playing an active and supportive role.

Public Health Units are the backbone of the public health system, and many Units are examples of best practices. Certain Units have strong relationships with long-term care facilities (LTCs), Community Care Access Centres (CCACs), and hospitals. These relationships are invaluable for planning and responding to an outbreak. Many respondents argued for a central role for Public Health Units in planning and responding to the next outbreak. However, while we clearly recognize the potential role, the Panel has heard repeatedly that structure, process, and clarity are required to guide the response, both in terms of central leadership and in terms of the relationship between public health and the broader health sector. This is an issue discussed in some detail earlier in this Report.

The Panel also heard again and again about the need to link local and provincial strategies for responding to outbreaks, with efforts at the national level. Regardless of the degree of coordination that did or did not take place between the levels of government, the overall perception at the provider level is that the response was not coordinated and that conflicting messages, case definitions, and a lack of adequate central support hampered the response effort.

"...there needs to be better linkages between the various players...this along with the concept of an integrated, flexible contingency planning process that links federal, provincial, and local levels would make responsiveness on the short term and long term much more effective..."

Processes, roles, and responsibilities between the levels of government must be clear prior to an outbreak. More than this, however, the processes, roles, and responsibilities must be clear not only to the provincial officials charged with their negotiation, but to the health sector as a whole. Clarity must exist hand in hand with transparency.

We have strongly heard that future plans should include a clear definition of the leadership structure for the response, with one individual as lead for the command centre. As one respondent argued "strong clearly defined leadership is required from the first sign of an emergency to the final stages and conclusion. Clear leadership provides focus and direction, eases anxiety and gets thing done efficiently. A single individual should be named and the person should have recognized health care experience as well as strong leadership capabilities."

Respondents supported linking plans and strategies among all organizations responsible for planning and leading the response. Many respondents suggested an overall plan that lays out the role of each provider in the system. The idea of an overall plan does not lessen the need for specific outbreak plans at the organizational level, but where possible the plans should be consistent within a health sector and understood and operationalized on a regional level.

Very Little Integration

Both this Panel and the National Advisory Committee heard that the overall lack of system integration within the Ontario healthcare system and the absence of effective regional coordination vehicles impeded the cross-sectoral response.

The Panel heard of limited cooperation among hospitals during the SARS emergencies – resulting in difficulties facilitating patient transfer, limited ability to pool resources, and redeploy and harness collective efforts. Over time, the Panel heard that more effective working relationships did evolve, and in certain instances, remarkable cooperation transpired.

There appear to be many reasons for this uneven level of cooperation; some appear to stem from a lack of emergency preparedness beyond the doors of individual institutions. For example, very little thought appears to have gone into how hospitals should work together during an outbreak – either at the provincial level or at the facility level. Recognizing that a major outbreak will pose even greater challenges than SARS, this is a system weakness that needs to be addressed before the next crisis.

With no comprehensive regional planning for hospitals and non-acute facilities, few mutual aid agreements were in place. Therefore, there was little capability to redeploy staff that, compounded by significant shortages in the areas of critical care, heightened the escalating impact of staff quarantines on system capacity.

An Attempt at Structure – The Alliance Model

We heard that the attempt to create regions and structures of support during SARS 2 through the 'Alliance hospital model' was, at least from a system perspective, a rational response to the impacts felt on delivery earlier in the outbreak.

The Interim Healthcare Alliance ('Alliance') was a coalition of four GTA hospitals focused on the assessment, management, and treatment of SARS patients. The GTA was broken down into three networks or management areas, with three of the Alliance hospitals acting as network hubs (North York General Hospital, Etobicoke site of the William Osler Health Centre, and the General Division of the Scarborough Hospital). The fourth site (St. Michael's Hospital) was to provide tertiary level support for all GTA SARS cases.

The Alliance model dedicated hospitals to the intake and management of potential SARS patients. This, in theory, was to allow other hospitals to provide services and keep their emergency departments open. The designated hospitals operated SARS assessment clinics and special units to care for SARS patients. The non-designated hospitals in each area gave some support to the Alliance hospitals through staffing, resources, and supplies. They also took non-SARS emergency cases and patients from the designated sites. The Ministry and healthcare sector provided support systems for the designated sites. The support system included an expert advisory group, on-site infection control expertise, and a dedicated line and assistance for patient transfers.

The Panel heard that at best, the Alliance model was a somewhat desperate effort to create structure and logic in the middle of a crisis, while a number of non-alliance hospitals continued to carry a heavy burden of SARS cases in SARS 2. It is also a very vivid reminder of the need for effective *advance* contingency planning within the health sector. The designation of Alliance hospitals brought with it a series of major issues that affected far more than the designated hospitals themselves: firstly, issues of staff safety and the importance of effective advance communications to staff; secondly, the need for an effective contingency plan to have resolved issues of compensation, staffing levels, redeployment, and supplies in advance; and, thirdly, the conditions and criteria. in terms of both service provision and support that the designated hospital must meet.

That these conditions were not wholly or in some cases partially addressed prior to designation during SARS is wholly understandable given the nature of the crisis. It will not be acceptable to either healthcare providers or institutions if these are not comprehensively addressed prior to the next outbreak – whatever form that may take. The Panel has heard clearly that much of the anger and ill-will caused by compensation decisions during SARS could have been lessened had contingency plans been in place.

However, for all of the problems, the Alliance model appears to have had some limited success in protecting certain key services that were clearly at risk during SARS 1. This is borne out by the preliminary data produced by the National Advisory Committee and preliminary analyses undertaken by the Institute for Clinical and Evaluative Sciences (ICES). This data appears to suggest that the system impacts of SARS on patient care were significantly less during the period of SARS 2. That the Alliance model was even partially effective is quite remarkable given the context of its development and the absence of cooperation on some fronts.

Advance contingency planning and/or effective working networks on a regional level were also absent for different types of facilities and agencies, as well as different sectors in the healthcare system. Most notably, we often heard that Public Health Units in certain areas could have assumed a much larger role in assisting hospitals.

The Panel heard that at times response efforts were impeded by the absence of pre-existing working relationships and a lack of clarity as to the precise expectations of local Health Units vis-à-vis the acute care sector. In certain cases, this resulted in a degree of animosity and tension that mitigated against a more coordinated effort.

Many respondents from the public health and hospital sectors commented on these tensions. More positively, in a series of joint public health/acute care forums sponsored by the Panel, both sectors clearly articulated the need to work together more closely in order to understand each other's skills and expertise and define their relationship; this is especially true with respect to infection control where there is a perceived lack of role clarity. For these positive sentiments to yield the benefits that are clearly possible, the Panel actively encourages the Ministry to pursue the regional infection control network model outlined earlier in this report, and thus formalize and support these local processes.

The Panel heard widespread support for a regional network approach as a potentially highly effective mechanism to better link and coordinate response to infectious disease outbreaks.

The Panel heard widespread support for a regional network approach as a potentially highly effective mechanism to better link and coordinate response to infectious disease outbreaks. Such networks would also have the added value of better positioning the health sector as a whole to link into the local emergency response structures in place at the municipal level.

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Problems with Code Orange

On March 26th 2003, the province declared a state of emergency and mobilized the Provincial Operations Centre (POC). At this time, all Ontario hospitals were directed to activate their Code Orange emergency plans, if they had not done so already.

Code Orange is part of the Uniform Emergency Codes, which the Canadian Healthcare Association (CHA) endorsed for use in Canada, and which the Ontario Hospital Association (OHA) recommended for adoption in 1993. While other codes for major emergencies indicate things like evacuation (Code Green) or in-facility chemical spill (Code Brown), Code Orange indicates an external disaster. Ontario healthcare facilities recognize this as potentially signaling a rapid influx of patients being brought to hospitals by ambulances. Code Orange is intended to apply to a specific area and to be used for a set period, as opposed to on-going emergency management.

The Panel heard that Code Orange was instrumental in establishing a chain of command and control, mobilizing resources, and allowing many affected facilities to minimize or eliminate non-essential services. However, consensus is that Code Orange was not entirely appropriate for an infectious disease outbreak; and, it may have caused unnecessary disruptions to providing services in an already-challenged healthcare system. As one hospital observed "The pros for this model were that everyone received the same message and was able to respond immediately. The cons were that the system became paralyzed."

Given the original purpose of Code Orange, many hospitals commented that its use for SARS was problematic. There was not an extraordinary number of incoming patients, as would occur during a natural disaster; paradoxically, the challenge in controlling SARS was to significantly restrict access to healthcare facilities.

Furthermore, Code Orange was never meant to have such broad geographic application, or to be used for such a sustained period. As a result, hospitals unaffected by SARS (most outside Toronto/GTA) were forced to reduce service significantly, thereby delaying procedures that, arguably, may have potentially put critical patients at risk.

In some ways, the use of Code Orange is illustrative of the perspective that many in health care have had concerning emergencies: emergencies are things that happen external to the healthcare system and to which, historically, the sector has responded with the primary goal of providing care and support to others. SARS changes this paradigm somewhat. SARS has taught us the need to recognize the responsibilities for providing care externally as well as for the need for responsiveness and understanding of the risk that an emergency might have on our healthcare providers, services, and facilities.

It is in part for this reason that the Panel heard strong support for re-examining Code Orange, preferably with a view to developing a new emergency code specific to infectious disease outbreaks and possibly biological and/or chemical contamination.

The Panel strongly supports that the Ministry, OHA, and CHA jointly and immediately undertake work to examine the specifics of a modified Code Orange or other code indicating infectious disease outbreak, and how it could interface with provincial direction in an emergency. The purpose of any new code should be clearly geared to signaling what an organization needs to activate vis-à-vis patient admission and bed use, and what it needs to activate internally to inform and protect staff.

Legislative Challenges

The Panel is aware that a number of questions have been raised by healthcare facilities and organizations regarding the legal authority behind measures taken to manage much of the SARS outbreak. Others involved in directly managing the outbreak have echoed some of the same points. These include: the need for sufficient powers to be in place during an emergency; the need for clarity regarding the authority to share information; and, the need for authority to undertake emergency transfers of ALC patients. For these reasons, the Panel urges a comprehensive review of relevant Ministry legislation.

Ontario should also make efforts to ensure that legislative flexibility exists in order to adapt emergency responses on the basis of the extent of the outbreak. In particular, emergency powers currently found in the *Emergency Management Act*[1], as well as in other related legislation under the purview of the Ministry, must be reviewed as a starting point for the establishment of a legislative regime that allows for a graduated system of response by the province to health emergencies, tailored to the level of actual or perceived risk. This review should involve a comparison against emergency powers legislation in other jurisdictions. The development of such a regime must be done with an eye to ultimate federal/provincial/territorial harmonization of all legislation creating emergency powers.

Challenges Presented by Visitor Policies

Once Code Orange was activated, many healthcare organizations established a 'command and control' approach internal to each organization in an effort to contain the outbreak. As part of this approach and to comply with Ministry directives, hospitals, and long-term care facilities significantly revised visitor policies. At the outset, they were forced to suspend visiting altogether. Later, the modified directives allowed limited visitation, depending on the type of facility. While long-term care facilities were mandated to allow only one visitor at a time, hospitals were permitted discretion in setting appropriate visiting policies.

Most observers saw this dramatic reversal in the general practice of providing unlimited access to visitors as necessary and, indeed, effective in controlling the spread of the disease for two reasons. First, given what was known, limiting visitors was a wholly rational approach to managing risk and limiting possible exposure. Second, the reduction of visitors lessened the demands on staff who were already coping with immense stress and working in extremely challenging conditions.

Yet it was controversial. And, as we discuss elsewhere, it was a move that was fairly poorly communicated to the public as patients or users of the system – a lesson in communications that needs learning for the next outbreak.

Furthermore, restricting visitors very much runs counter to the prevailing practice in modern healthcare facilities of permitting as much family involvement as possible in the care of the patient; this is widely held to have a positive impact on patient wellbeing and, in certain circumstances, on patient outcomes. For example, studies conducted in coronary care and post-anesthesia care units suggest that visitors can reduce the anxiety level of patients.[2] Moreover, it has been acknowledged that such involvement may assist family members in preparing themselves for caring for the patient at home. Not surprisingly then, liberal visiting policies have increasingly become the norm.[3]

However, there is evidence to suggest that visitors can be the source of hospital outbreaks of infectious diseases or, alternatively, may themselves be exposed to communicable diseases while in the facility. As a result, restricting visitors is often used to control infectious disease outbreaks, particularly those of a respiratory nature.[4] Facilities were thus faced with the challenge of weighing the need to contain the spread of SARS against the known benefits of family contact and the potential negative impact such restrictions might have on patients.[5]

No matter how well-intentioned, the task of implementing the directives on visiting was a difficult one. Many facilities struggled in their efforts to determine how to balance the interests of patients and their families with the need to minimize the spread of infection. Significant problems existed on both sides of the spectrum; some providers complained about a lack of sufficient enforcement of visitor policies and too 'lax' an approach for certain facilities, while in other facilities, family members were restricted from seeing dying relatives.

In the words of one respondent "Directives that compromise the survival of clients because of the need to protect providers confront providers with ethical dilemmas that beg for discussion and further resolution." Another respondent spoke of the difficulty of implementing this requirement "despite knowing the importance of family and social support to clients during serious illness, injury or death" and being aware of "the devastating impact upon family members when denied access to an ill parent, spouse or adult child." In long-term care facilities, this issue was particularly troubling for the reason that "the SARS crisis coincided with several important cultural and family-centred dates - Easter, Passover, Mother's and Father's Days."

Matters were also complicated by the fact that at certain stages each facility was given responsibility for modifying their own respective visitor policies, without guidance or assistance from provincial authorities. As one respondent observed "Materials that could have been developed centrally by an expert group and customized locally would have been more efficient, cost-effective and supportive of frontline staff. As it was, every organization was scrambling to respond, re-inventing the wheel."

Understandably, some patients and their families strenuously objected to the new measures, which in turn caused discomfort for those responsible for ensuring compliance. As a result, staff was often unhappily "placed in the role of enforcer rather than care provider," causing them to be "in frequent conflict with families."

Many also observed that the lack of legal or regulatory authority was a barrier to enforcement. As one respondent commented "The restriction of visitors was very difficult to enforce. A lot of families would just come in at separate times and we would only find out later that too many visitors were in the facility. In the future could there be some legislation stating a fine or something for breaking the regulation set out by the MOH?" Another suggested that, at a minimum, "it would have been nice to receive an official letter from the MOH that could have been handed out to families explaining why we were having some restrictions with visitors."

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Despite these challenges, the Panel heard widespread support for examining the appropriate level of public access to hospitals on an ongoing basis. Overall, consensus is that adopting more stringent visitor policies permanently and monitoring visits more closely (possibly through a visitor log) have significant benefits and need to be actively pursued.

As one respondent suggested, "We should have a standardized visitor policy which takes our hospitals from being shopping malls and coffee shops to a more restricted designation where some areas of the hospital may be for public consumption but other areas are limited to visitors." Furthermore, many hospitals indicated that they would welcome uniform hospital visitor protocols, which they could immediately activate during infectious disease outbreaks.

We believe that we should examine public access to hospitals, and, in the immediate term, review visitor policies in the context of infectious disease outbreaks, as part of emergency preparedness in Ontario. To offer some assistance in developing some form of more consistent approach, the Panel has commissioned an expert/ethicist review of visitor policies with a view to documenting potential models worthy of consideration. We intend to provide further comment on this matter in the final report.

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Surge Capacity

The need to build strong surge capacity into the healthcare system is another theme for change. This phrase has become something of a mantra in healthcare circles post-SARS. With overall occupancy rates in the acute care sector at or around 96% and an ongoing problem with waiting times, it is clear that simply adding bed capacity will not in and of itself create greater surge capacity. Beds cannot and, indeed, probably should not be left empty while individuals wait for care. Therefore, in addition to addressing chronic under-capacity in the system as a whole, we must formalize alternate mechanisms to free up potential capacity during an emergency. 'Surge capacity' is probably best understood as not simply adding more staffed beds, but as the ability to expand care capacity in the face of sudden increases in demand.

The National Advisory Committee discusses this concept in its report, focusing on developing the national capacity for the deployment of Health

Emergency Response Teams (HERTs). In this area and in others, SARS taught us lessons applicable to the healthcare system in the future.

ALC Discharges

With respect to bed capacity, many respondents supported the Ministry designating all Alternative Level of Care (ALC) clients in GTA hospitals as priority placements to long-term care facilities. This designation, while far from problem-free and not without cost to the individuals and families affected, allowed for a rapid transfer of patients whose care needs could, at least in theory, be met outside of an acute care facility, thereby decreasing the pressure on hospitals and freeing acute care bed capacity.

"The Alternative Level of Care (ALC) experience during SARS cannot go unmentioned. During the outbreak a large number of acute care beds that had been occupied for a long time by ALC patients were made available 'instantly.' This phenomenon must be studied and an ongoing system to maximize the availability of acute care beds developed out of this experience."

This measure may or may not have been of crucial importance in the overall response to SARS. However, the Panel's focus is not just on SARS; the next outbreak may be of a different nature. It might involve mass casualties or a sudden increase in demand for clinical or ward capacity. These scenarios will also require transferring significant numbers of non-acute patients out of hospitals to other sites to free up response capacity.

What the experience of the ALC transfers illustrated was that where you had cross-sectoral cooperation and a common recognition of need, the inability to free up acute care beds (a seemingly intractable problem at the acute care level) could be solved and solved (at least partially) very quickly.

On a large-scale, this experience offers a challenge to hospitals and the community health sector. The challenge includes, certainly for emergencies, codifying and formalizing a rapid transfer policy for alternate level of care patients. The Panel is aware that to do this appropriately, respectfully, and with the supports required, it will take thought and time. We certainly do not pretend that the experience during SARS should simply be adopted without change. That said, if contingency plans could be in place with alternative care locations, prioritization criteria, evacuation and triage plans, and with appropriate supports to ensure patient safety, then the ALC transfer experience may offer us lasting lessons.

The ALC transfer during SARS showed that in the short-term at least, surge capacity within acute care is as much about redeploying or managing capacity as it is about expanding it. In a health system operating at full capacity, this is of particular importance.

The Panel heard that one area of the acute care sector that was particularly impacted by the effects of SARS was the area of critical care. A number of submissions to the Panel highlighted significant challenges accessing critical care beds during the outbreak. The Panel also heard of the shortages in critical care nursing, and is devoting considerable time to working with experts in this area to better assess the need for critical care nurses in an emergency and mechanisms for deploying staff.

A pre-requisite for effectively managing critical care capacity is up-to-date and accurate critical care bed capacity data. Both during SARS and on a day-to-day basis. CritiCall is a mechanism by which facilities track and report available critical care beds. The Panel is convinced of the value of CritiCall, however, research to-date suggests that there is a need to examine and put in place appropriate measures to ensure that CritiCall data is accurate and timely.

Emergency Registries

Innovative work on staffing is underway in Ontario. For example, the Registered Nurses Association of Ontario and the Registered Practical Nurses of Ontario are developing the VIA Nurse Registry. This is a voluntary emergency registry of RNs and RPNs, for deployment to healthcare facilities. VIA is a potential model for other health professions.

The Panel encourages the Ministry to examine those areas in which staffing registries would facilitate rapid deployment of staff in the event of an emergency and look to the VIA Nurse Registry as a potential model. These registries should be developed to ensure access to the necessary skill sets required during an infectious disease outbreak or other health emergency.

Inter-provincial Deployment

The rapid deployment of healthcare personnel is another key area. In 2003, the Deputy Ministers and Ministers of Health endorsed the development of inter-provincial Health Emergency Response Teams (HERTs), which could be rapidly deployed in the event of an emergency situation as needed. These teams, the National Advisory Committee observed, would act as a "platform for mobilization of personnel to address the specific requirements of a health emergency."[6] The F/P/T Network is currently developing the HERT program, and is building a central function to support collaboration among Canadian jurisdictions.

"The plan needs to include a mobile crisis team, including infection and disease physicians and nurses and managers with expertise in coordinating emergency responses that can be dispatched within hours to support facilities in crisis."

The Panel strongly supports the ongoing development of the HERT program and looks forward to a greater formalization of health sector memoranda of understanding between jurisdictions, to better formalize support and aid agreement across provincial boundaries in the event of an outbreak or emergency requiring a rapid influx of additional health sector capacity.

The Panel is aware of the complexities inherent in staff redeployment and urges ongoing attention to address the administrative, legal, and logistical challenges posed therein as part of contingency planning at the regional level.

Mutual Aid Agreements

The concept of mutual aid agreements has relevance at the cross-jurisdictional level. Increasingly, the Panel is convinced of the potential value of health sector mutual aid agreements. The Panel heard of a number of facilities and agencies increasingly pursuing mutual aid models. These models, at their most comprehensive, would allow for the redeployment of staff between organizations, shared approaches to training, and pooled access to materials and equipment as required in an emergency.

Given the multiple issues and parties involved in developing effective agreements and the need, to the extent that is reasonably feasible, for consistency, the Ministry, OHA, and other providers should examine the value of developing model mutual aid agreements. Such agreements could also include measures to improve infection control during routine periods. Developing these agreements will require the support of the Ministry, professional associations, and academic health sciences centres.

Elsewhere in this Report, the concept of regional infectious disease networks has been proposed. If the Ministry chooses to undertake this form of approach, the Panel would envisage that one role of the networks would be to support the development of mutual aid agreements among providers and potentially to attempt to codify and coordinate the agreement on a regional basis.

Supplies and Equipment

SARS had a profound effect on the traditional supply and distribution of the protective equipment needed by healthcare providers, particularly at the onset of the outbreak. The Panel heard of the significant challenges experienced at the facility and provider level in accessing basic supplies, as well as at the provincial level.

The threat of SARS, the Panel heard, resulted in healthcare organizations across North America attempting to secure the same supplies at the same time. With no ready access to a domestic supplier of certain forms of protective gear, simply obtaining a basic supply was a huge challenge. Understandably, at times the difficulty some experienced in accessing supplies created immense stress.

The directives required protective gear that in certain cases was unavailable. In some cases, organizations' traditional supply lines were of little use as the suppliers themselves were scrambling to identify available stocks.

SARS thus revealed clear provincial and national weaknesses around both production and distribution of emergency supplies. The Panel is aware of work at the provincial and federal levels to upgrade stockpiles and formalize distribution networks.

As one respondent explains "inter-agency planning and coordination could be improved. This is particularly important in respect to the availability of infection control supplies and equipment. More specifically, we need to develop plans respecting the purchasing and distribution of these resources to ensure this is achieved in the most cost-effective and efficient matter possible. Though we do not all need to stockpile enormous quantities of supplies and equipment for every eventuality, we all require minimum number of resources that are available for primary response and a system that can be facilitated quickly to acquire the rest on demand."

The Panel acknowledges the progress being made in this area. However, we also note the need for both provincial and federal authorities to examine contingency approaches or protocols that would facilitate rapid domestic production of priority supplies if required. This point is important because of the possibility that a future outbreak or emergency on a large scale may have a cross-border impact, thereby restricting the flow of goods. Adequate contingency planning will clearly need to be in place nationally and locally to anticipate this scenario.

Service Continuity

Numerous submissions commented on the impact of cancelling services and procedures, emphasizing the need to create a system that can provide routine care during an outbreak. Many patients who need chronic or acute care may be in danger of losing access to services and medications during a public health emergency.

"In the future, services should not be cancelled...perhaps on a reduced basis but not cancelled completely."

During SARS 1, the directives required GTA hospitals to restrict access to all but the most critically ill patients. As a result, inpatient occupancy and surgical volumes fell. During SARS 2, the Alliance model may have insulated GTA hospitals from substantial and ongoing service reductions. But according to a study for the National Advisory Committee, non-Alliance hospitals could not return to pre-SARS occupancy levels. The Panel agrees with the respondent who states that "we need to manage outbreaks while maintaining service to those who have been booked for operations & procedures because the reality is that re-booking will only increase inconvenience for all patients and cause greater delays for life-saving treatments." The Panel has extensive research underway through the Institute for Clinical Evaluative Sciences and will bring forward a detailed discussion of this issue in the final report.

A New Office of Health Emergency Preparedness: Description and Rationale

The major feature of our Panel's recommendations is a single Ministry office to coordinate health sector preparedness activities and to facilitate the effective involvement and deployment of the health sector in a health emergency.

"Emergency management would be improved by a clearly defined provincial legislative and regulatory emergency response structure, with defined processes, clear powers and defined jurisdictions (provincial vs. municipal)."

The idea of a coordinating and planning body for health sector needs in an emergency does not take away or lessen the need for broader cross-sectoral emergency planning capacity. Indeed, for the health sector to be an effective partner in broader emergency response requires coordination, organization, and significantly greater internal capacity and support than was in place at the Ministry at the outbreak of SARS.

The ability to formalize links with broader emergency response planning and with the proposed regional Infection Control Networks is central to the capacity of this proposed office.

There is a clear need for coordination, consolidation of activities, and greater transparency within the Ministry. We believe that a 'one office, one plan' approach is the best path to ensure that Ontario is ready for future infectious disease outbreaks. A health emergency preparedness office is not only a response to what the Panel heard from many in the healthcare sector; it is also consistent with developments in other jurisdictions.

At the national level, Health Canada has recently developed the Centre for Emergency Preparedness and Response (CEPR), to act as Canada's central coordinating point for public health security issues. The Centers for Disease Control (CDC) has a dedicated program for bioterrorism and public health preparedness. In January 2002, the US Department of Health & Human Services created an Office of Public Health Preparedness with a mandate to direct the Department's efforts to prepare for and respond to acts of bioterrorism and other public health emergencies. Many US state governments also have offices dedicated to emergency preparedness.

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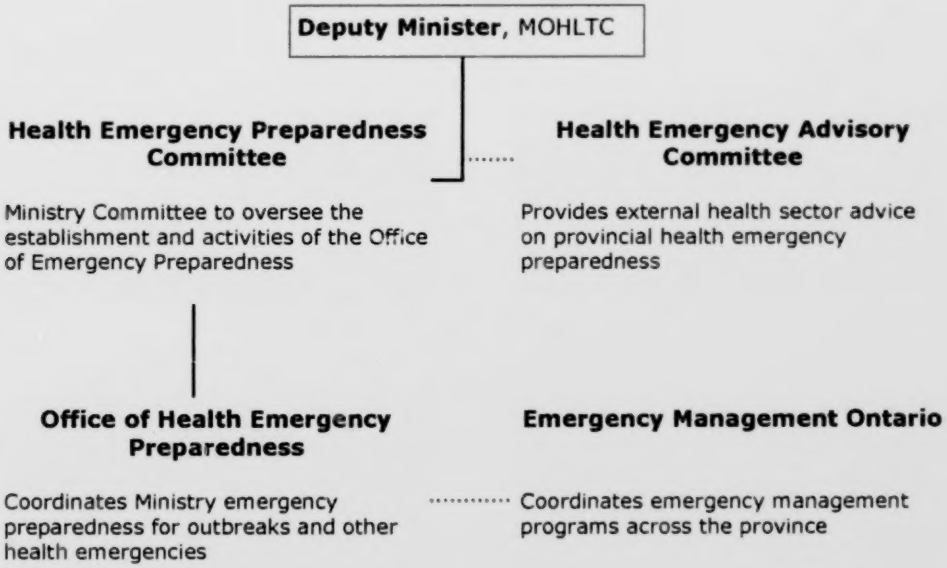

Deputy Minister, MOHLTC

Health Emergency Preparedness Committee

Ministry Committee to oversee the establishment and activities of the Office of Emergency Preparedness

Health Emergency Advisory Committee

Provides external health sector advice on provincial health emergency preparedness

Office of Health Emergency Preparedness

Coordinates Ministry emergency preparedness for outbreaks and other health emergencies

Emergency Management Ontario

Coordinates emergency management programs across the province

Figure 1: Office of Health Emergency Preparedness: Structure and Mandate

California, Michigan, and Florida all have offices of Public Health Preparedness. The Minnesota Department of Health has an Office of Emergency Preparedness. These offices have a similar mandate that includes coordination of planning for public health threats; assessing the preparedness of public health and health authorities to respond to an emergency; raising public awareness; conducting training; and, liaising with other government departments and outside agencies. In the UK, the Emergency Preparedness Coordination Unit is responsible for the coordination of contingency planning and readiness of the NHS to respond to major incidents.

The rationale for the new office is clear in what we heard from the field following the SARS outbreak. People spoke about the lack of coordination and clarity, and about the need for central planning and information in advance of an outbreak. The mandate of the Health Emergency Office would, as proposed, include: the coordination of health sector contingency planning; assessing Ministry readiness; acting as a liaison to other governments and ministries; and, providing information to the healthcare sector and the public, all within the context of preparing for outbreaks and other health emergencies.

Under Ontario's *Emergency Management Act*, the Ministry is responsible for developing and implementing an emergency management program. Emergency Management Ontario (EMO) is responsible under the *Act* for monitoring, coordinating, and assisting in the development and implementation of the emergency management programs.

In widespread emergencies, the Minister of Community Safety and Correctional Services or another Minister appointed by the Premier (through the coordinating role of EMO) may assume a lead role. During a provincial emergency, the Ministry of Health and Long-Term Care is responsible for large-scale human health emergencies, epidemics, and emergency health services.

Local, Regional, and Provincial

The overriding principle that should guide our approach to preparedness for health sector emergencies, or outbreaks or incidents that risk developing into human health emergencies, is to strengthen our capacity to mange and respond effectively at all levels, local, regional, and provincial.

Our goal should thus be to have the level of coordination, structures, and supports in place that allows effective response on the ground to an immediate risk, elevating the level of response required commensurate only with the degree of risk and the capacity of the lower level of response to meet that risk. This basic philosophy reminds us that attention only to the provincial level will miss the need for robust response capacity on the ground, an element that in certain areas was clearly absent during SARS.

Elsewhere in this Report, the Panel also raised the concept of developing regional networks for infection control. Insofar as these regional networks do get developed (which we envisage as cutting across the silos of the health sector), the Ministry will be supporting an important step in broader health sector preparedness.

At this stage, unlike most Canadian jurisdictions, little stands between the capacity of a local hospital, EHS, and Public Health Unit to manage an actual or potential outbreak and the move to centralized control at the provincial level. Far more responsive and tiered capacity is clearly both desirable and achievable.

Elsewhere in this Report, we have highlighted the need to strengthen the foundation blocks of infectious disease response at the local level and to facilitate more integrated local approaches to infectious disease containment. These measures, too, will assist greatly in building the overall cohesion and organization that the health sector will be able to use should other emergencies arise.

Undertaking and supporting this level of coordination and support is an immense challenge. It is one for which dedicated resources and staffing will be required. We would suggest that this is a logical function for the proposed Office of Health Emergency Preparedness.

In proposing this approach, the Panel is aware of the role at the provincial level of Emergency Measures Ontario, which is responsible for coordinating and monitoring emergency management programs across the province, and the Ministry, which is responsible for planning for health emergencies. For the proposed office to function effectively with the assigned health sector tasks, it will require that effective, collaborative working relationships and clear lines of responsibility are established. The Panel believes that this is achievable and is a vital component to an effective overall emergency response capacity.

In all of the jurisdictions that we identified as having dedicated offices for public health or emergency preparedness, these offices operate alongside of emergency management departments. The fastest way to ensure that the province is ready for a local or widespread public health emergency is for the Ministry to work with its partners in the healthcare system and liaise with the broader emergency management framework.

In order to better ensure awareness of Ministry activities and to allow for the Ministry to benefit from the experience of providers in upgrading its emergency response capacity, the Panel strongly suggests that the Ministry establishes a healthcare reference group to advise on the evolving planning for a health emergency infrastructure.

The recommendations for immediate action contain timelines for completion; where the Panel recommends a review or assessment, there are timelines for submitting an action plan to the Minister. We also recommend that the Ministry post plans and documents on its website.

Recommendations

21. The Ministry should immediately create an Office of Health Emergency Preparedness (OHEP) with appropriate staffing and authority and with a formal link with the Ministry of Community Safety and Correctional Services. The office should be established by April 1, 2004 and should:

    a. report to the Deputy Minister through a Health Emergency Preparedness Committee. The Committee should oversee the establishment of the office and its mandate, and provide ongoing advice and strategic direction for the OHEP
    b. provide leadership with respect to the Ministry's emergency preparedness activities
    c. ensure implementation of the recommendations below within the timelines stipulated. Until such time as the OHEP is operational, the Ministry must act on these recommendations in its place.

22. Once established, the OHEP should act as Ministry liaison with Health Canada, Emergency Management Ontario, and other relevant organizations regarding public health emergency preparedness. Specifically, the OHEP should begin to work closely with Health Canada in three areas:

    a. Ensuring [illegible]e relevance and readiness of any emergency stockpile system and of appropriate provincial linkages and protocols as required for the purposes of coordination.
    b. Developing the Health Emergency Response Team program.
    c. Harmonizing federal and provincial emergency preparedness and response capacities for public health emergencies.

23. The Ministry should move promptly to review and assess specific areas of emergency preparedness, and create action plans and recommendations through advisory committees with clinical and operational expertise. The key areas for review and assessment are:

    a. The development of emergency protocols for patient transfer, including an objective evaluation of the Patient Transfer Authorization Centre system.
    b. A review of the accuracy and utility of the CritiCall program. This should include an analysis of the role that the CritiCall Program and Central Bed and Resource Registry could play in the management of future outbreaks and the checks or mechanisms required to ensure data accuracy.
    c. The development of formal emergency protocols for rapid discharge of hospital Alternate Level of Care patients from hospital to

alternative sites, specifically long-term care facilities. This should include a review and analysis of the use of the category 1A crisis designation under the regulatory provisions governing the placement coordination system under long-term care legislation.

d. Provincial, regional, and institutional capacity to obtain and distribute supplies and equipment during infectious disease outbreaks and other public health emergencies.

The Ministry should report the results of the review and present the accompanying action plans to the Minister by March 1, 2004.

24. Once the OHEP is established, it should have a dedicated website to raise public awareness and promote the transparency of the Ministry's preparedness activities. The OHEP should use this website to post reference documents, appropriate contingency plans, and promotional materials concerning Ministry and health sector emergency preparedness. Until the OHEP is fully operational, the Ministry should immediately post all contingency plans on the Ministry website.

25. The Ministry, and with the OHEP in a coordinating and monitoring role once it is established, should immediately update and test a generic plan or standard operating protocol for the provincial response to infectious disease outbreaks and public health emergencies, including bioterrorism. This plan should be complete by June 2004 and should be posted on the OHEP or Ministry website as soon as it is complete. As an interim measure, the Ministry should post on its website a summary of the main roles and responsibilities of government and independent organizations in planning and responding to public health emergencies by February 1, 2004.

26. The Ministry, and with the OHEP in a coordinating and monitoring role once it is established, should broadly disseminate contingency plans for pandemic influenza and smallpox by March 15, 2004. These plans should be posted on the Ministry website.

27. a. The Ministry, together with professional associations, regulatory colleges, and the OHEP in a coordinating and monitoring role once established, should continue to develop provincial registries to provide rapid deployment of healthcare personnel. An action plan for developing these registries should be presented to the Minister by February 1, 2004. Registries should be tested and evaluated within 12 months of their inception.

b. The Ministry should initiate the ongoing development of cross-jurisdictional mutual aid agreements with other provinces and territories that provide for appropriate health human resources deployment, inter-jurisdictional licensing of professionals, compensation and remuneration agreements, and provision of supplies and equipment. The Ministry should provide a status report on this review by April 1, 2004.

28. The Ministry, in conjunction with the Ontario Hospital Association (OHA), Canadian Hospital Association (CHA), and other appropriate organizations, should immediately examine the development of a specific code for Infectious Disease Outbreaks. Ideally, this code would be adopted nationally and be reflected in appropriate contingency planning at the provincial and federal levels.

29. The Ministry, along with the Ministry of the Attorney General and other appropriate Ministries, should conduct a thorough review of existing emergency powers and related legislation with a view to establishing a graduated system for responding to health emergencies. A status report on this review should be submitted to the Minister of Health and Long-Term Care and the Minister of Community Safety and Correctional Services by March 1, 2004.

    As a second phase, the Ministry and the federal government should work together to ensure harmonization of emergency powers legislation by October 2004.

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Chapter Four: Communications

Chapter Four: Communications

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Introduction

To effectively deal with infectious disease outbreaks and health emergencies, the province needs to provide credible, timely, and as much as possible, evidence-based information to the general public, healthcare providers and the system as a whole.

SARS was characterized by an unknown cause and had no clear diagnosis or treatment. The situation was unique in that Ontario did not have immediate answers. This made it difficult to communicate clearly with the public and healthcare stakeholders about the disease. That said, the difficult situation was made significantly more challenging by the absence of direct lines of communication to healthcare providers and the need to understand the number and diversity of stakeholder groups, and respond accordingly to their respective needs for information.

The Panel recognizes the challenges faced by all those who were involved in communicating to the public and to healthcare providers throughout the SARS crisis. The multiple lead spokespeople from across government, as well as the absence of effective mechanisms to communicate directly to providers, emerged as barriers that were unforeseen prior to the emergency. That the efforts of these key spokespeople were successful in delivering messages to many stakeholder groups, despite the major hurdles and lack of infrastructure, is a tribute to their commitment to containing an outbreak of unknown magnitude.

One of the lasting lessons of SARS is the need for the Ministry to communicate effectively and in real-time with frontline healthcare providers during an outbreak.

One of the lasting lessons of SARS is the need for the Ministry to communicate effectively and in real-time with frontline healthcare providers during an outbreak. This lesson is absolutely central in order to have a strong emergency preparedness plan for the future. The Ministry lacked this capacity during the SARS outbreak, which resulted in delays in issuing warnings and in problems reaching certain providers effectively with vital information. Ontario must have this critical capacity next time.

The Panel heard very clearly that it is critical that the Ministry have in place adequate and organized communications strategies in order to respond to infectious disease outbreaks and other health emergencies. Specifically, the province must ensure that a comprehensive communications strategy has the two core components of public health risk communication and crisis communication. Public health risk communications delivers practical messages about the nature of risk to the public, in advance of as well as during a health emergency. On the other hand, crisis communication refers to the government's communications response during an emergency. The efforts of public health risk communication must support and be complementary to crisis communication efforts. These distinct strategies must be developed as integral components of a comprehensive communications strategy in order to achieve a balance between public health risk and crisis communications.

We strongly encourage the Ministry to ensure that the necessary and appropriate skills sets are positioned at the regional, local, and Public Health Unit levels to ensure a comprehensive communications strategy is in place to prepare for an infectious disease outbreak or other health emergency. Wherever possible, this should build on already-existing capacity and expertise.

An effective provincial communications strategy, encompassing a technologically advanced infrastructure, and a clearly defined approach, will be key to strengthening the province's response to infectious disease outbreaks in the future.

During the SARS outbreak, the technological infrastructure required to communicate with healthcare providers was not in place. This limitation created barriers to releasing scientific information to providers in a timely way. An effective provincial communications strategy, encompassing a technologically advanced infrastructure and a clearly defined approach, will be key to strengthening the province's response to infectious disease outbreaks in the future.

Moreover, we heard that poor communications contributed significantly to heightened confusion and anxiety for providers and the public; limited the ability of healthcare providers and the Ministry to deal with media sensationalism; and compounded sometimes unclear direction. The province cannot allow again a situation whereby the Ministry lacks the basic communications capacity to deal with a health emergency. As part of its response, the Ministry must also recognize the diversity of stakeholders affected by a health emergency. Communications must include targeted messages for all portions of the health sector (acute and non-acute hospitals, LTC, community-based providers), the public, the public as patient, government, educational institutions, and other relevant groups such as the tourism sector.

SARS cannot be viewed as an aberration. We must assume that the next health crisis or the next emergency will also include many unknowns. But we must ensure that we have the means to communicate effectively what we know when we know it.

Key Learnings

There are two overarching issues that have emerged in the interviews and submissions to the Panel related to communications: overall preparedness and information dissemination capacity.

Preparedness and Contingency Planning

The sheer volume and nature of communications challenges during SARS were unlike anything that the Ministry and healthcare providers and organizations had ever experienced. In Toronto, SARS rapidly became a global news story, with every nuance and rumour of information having repercussions way beyond the borders of Ontario and even Canada.

To some extent, we can attribute several communications challenges to the nature of the emergency. Still, Ontario needs to address the general absence of an emergency framework for communications in health emergencies.

To some extent, we can attribute several communications challenges to the nature of the emergency. Still, Ontario needs to address the general absence of an emergency framework for communications in health emergencies, which includes the distinct capacity for developing public health risk communications and provider communications as part of an overall framework. The lack of capacity to undertake these two critical components is a shortfall that can be addressed in the near future.

During SARS, communications efforts were trying to reach several audiences at the same time – the public, healthcare providers, and potential patients and users of the healthcare system. While the information requirements of these audiences differed significantly, there was no clearly delineated plan to address each audience's needs in a coherent and coordinated way and through multiple channels. For example, without a coordinated approach, communications with the public was

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managed inconsistently and presented numerous challenges. According to Toronto Public Health (TPH), "... the SARS Hotline was set up to provide an interface between public health and the citizens of Toronto. The roles of the Hotline included health education and counselling, case finding, contact identification, recognition and follow-up of emerging issues, and gathering and relaying of information between the community and TPH. Telehealth, the provincial health information line, was an important adjunct; however, consistent messaging and having the most up-to-date information on both lines was a challenge. Notably, the total volume of calls received on the TPH Hotline (over 300,000 calls altogether, with a daily peak of 47,567) exceeded the total number reported by Telehealth." During SARS, the volume of calls to Telehealth increased significantly and peaked at 13,000 a day.

The Panel believes that a comprehensive communications strategy would more effectively reach the public and reduce the need for ad hoc mechanisms, such as independent hotlines, to be established to respond to public concerns. There is no question that there was a province-wide need to respond to the thousands of individuals who sought out information during the SARS outbreak. However, many organizations, including Public Health Units, redirected some of their staff to the processes they established to respond to questions and concerns from the public. This took time, effort, and human resources that could have been better used elsewhere had the central support been stronger. By having a comprehensive communications strategy that addresses the public's information needs, it would free up these dedicated resources so that they can be used in other aspects of the emergency.

While the communications efforts reached much of the public, the Panel clearly heard that greater efforts are required in the future to effectively reach healthcare providers and specific sub-populations. More critically, the province needs far greater overall pre-planning to facilitate more consistent and coordinated communication. This planning should consider how healthcare providers need to be positioned to receive scientific information, to potentially respond to patient questions, and whether that should happen *in advance of communicating with the public*. Issues of confidentiality and privacy must also be considered with a view to ensuring that these issues are not inappropriately played out in the media.

This planning should consider how healthcare providers need to be positioned to receive scientific information, to potentially respond to patient questions, and [when that should happen].

We also heard that several of the specific communications challenges during SARS were symptomatic of role confusion. For example, communications roles were not clear in terms of who should give direction, to whom, and about what. Accordingly, the Panel heard that an inordinate amount of time was spent by healthcare providers addressing and re-addressing information requests from multiple sources, or simply clarifying the role and authority of one body vis-à-vis another. Without clear lines of authority and a known chain of command and reporting structure at the top, there is a significant potential to undermine *any* emergency response across the system and its associated communication framework.

Often, the absence of clarity was most acutely felt at the local level. Many respondents, especially those outside of the GTA, felt unclear about the role that their local Public Health Unit was playing or expected to play vis-à-vis the Provincial Operations Centre (POC).

During an emergency or infectious disease outbreak, the Ministry and other parties should be able to *immediately* operationalize a clear, commonly understood crisis communications plan. This plan should be refined with healthcare providers and other levels of government, and made available across the sector to appropriate stakeholders *in advance of an emergency*. Among the principles of such a plan are:

- Designated spokesperson(s)
- Standard communication protocols including clarity of roles and responsibilities
- Timely communication and dissemination mechanisms to the field
- Designated contact individuals identified
- Protocols to ensure consistency of messaging/information across audiences with emphasis on risk communication theory and practice
- Responsibility for preparing and producing supporting materials
- Open lines of communication i.e., two-way communication to support interpretation, clarification and implementation
- Rumour and misinformation control

Communications Infrastructure

Stakeholders described the technical aspect of the province's communications infrastructure as clearly inadequate. Despite significant investments in information technology over the past decade and considerable central communications capacity, the Ministry was unable to broadly distribute basic information at the early stage of the crisis. At the local level, a number of Public Health Units lacked some very basic resources like sufficient numbers of cell phones and computers. The absence of a robust communications infrastructure impeded both the timeliness and effectiveness of getting critical information to healthcare providers.

One acute care hospital recommended, "The communication of information on a timely basis should be provided to the ICPs if the Ministry has directed that this person be available 24 hours. A network of fan-out communications to family physicians and emergency physicians is desperately needed as these large groups could be involved in the very initial recognition of an emerging communicable disease. Telephone, e-mail and fax should all be considered in the planning of communications." Building on the communications infrastructure, there is a need for a public health alert system to provide communication concerning infectious disease outbreaks and public health threats to all healthcare providers.

Furthermore, at the outset of SARS direct communication with family physicians, other healthcare practitioners and direct healthcare providers, such as clinics varied across the province. There were no centralized databases available with comprehensive up-to-date contact information for healthcare providers, which contributed early on to significant frustration and 'disconnectedness' in the healthcare sector. Without early, accurate and broadly disseminated information, rumours emerge and inconsistent information seeps out throughout the healthcare sector. This was also exacerbated by the absence of effective mechanisms for two-way communication required for clarification of often complex directions and ongoing dialogue regarding their implementation.

Information dissemination has been identified as a major problem. However, we must also examine the uptake of and access to information. The Panel has discussed in depth the shared responsibility in a health emergency of both disseminating critical information and the responsibility of healthcare providers to take reasonable steps to access available information. Crisis communications is a two-way street with shared responsibility. This raised the issue of standards of practice for electronic competency; that is, ensuring the ability to access and/or respond to e-mail, websites, and webcasts on a timely basis. Health professional bodies have an ongoing responsibility to ensure that all healthcare practitioners achieve electronic competency and incorporate this critical competency into their standards of practice. The Panel recommends that goals be set for achieving this within the next three years.

Given the limited distribution of the SARS directives to hospital CEOs and other designated staff (in the acute and long-term care sectors, at certain stages), it became critical for healthcare agencies and institutions to disseminate information and communicate internally, in order to ensure clarity and to give frontline healthcare providers the information they needed. This, however, varied considerably.

Some facilities and staff reported that highly effective internal communication mechanisms were put in place relatively quickly. These included daily newsletters, e-mail updates, staff teleconferences and video-conferences. Other facilities, however, reported limited distribution of information and poor access to information for frontline providers with directives disappearing into a black hole.

Some facilities and staff reported that highly effective internal communication mechanisms were put in place relatively quickly...

"VON had a communication infrastructure in place and within 24 hours was able to link its entire frontline management staff across the country..."

"VON had a communication infrastructure in place and within 24 hours was able to link its entire frontline management staff across the country via a listserv and website to ensure everyone had SARS info in a timely fashion. There was a dedicated 'SARS Point Person' identified at everyone's branch. VON quickly built and maintained a website to provide easy access to the WHO, Health Canada, POC and Public Health SARS resources."

The differing approaches to disseminating and using information within health care organizations created further confusion and frustration. The Panel heard how individuals working at one facility were provided with directives and up-to-date information upon beginning a shift in E.R., but were unable to access the same information in another facility later in the day. This lack of consistency in disseminating information to healthcare providers undermines confidence and heightens risk.

Despite enormous efforts to create a functional communications infrastructure during the crisis – as one interviewee rightly noted "the healthcare system is too big to pull together at the last second."

The Ministry, Ontario Hospital Association (OHA), Ontario Medical Association (OMA) and other provider organizations need to examine how to a) maximize direct information dissemination; b) ensure greater consistency in disseminating information at the facility and agency level; c) ensure consistent and complementary messaging with lay spokeperson(s) across sectors; and, d) ensure electronic competency among all healthcare practitioners.

Directives

No single aspect of communications has received more comment than the provincial directives. Directives were issued from the Provincial Operations Centre (POC) and later through the SARS Operations Centre (SOC) throughout the SARS emergency to provide direction to the health sector on issues related to emergency preparedness and response. Despite the amount of criticism that the directives have received, a number of submissions acknowledged the guidance provided by the directives. For all the limitations of the directive system and the conditions under which they were produced and disseminated, ultimately the process did assist the health sector in controlling the spread of SARS.

During the SARS outbreak, the POC/SOC worked against tremendous odds, with an ad-hoc scientific team assembled almost overnight, to deliver emergency directives to healthcare providers across the province. The team worked relentlessly, responding to numerous information requests and crafting directives under extreme pressure. The directives were created at a time when very little was known about SARS and when their efforts were hampered by the lack of an effective provincial communications infrastructure. By necessity, directives changed frequently as more information became available during the course of the outbreak.

Understandably, the initial directives... focused on acute care inpatient units... these directives were difficult to adapt to a wide range of other settings, leaving many sectors with different interpretations of the directives.

Understandably, this caused confusion, inconsistent application, duplication, and lower compliance and buy-in among healthcare providers. The distribution times were subject to significant criticism, especially when distribution took place on Friday evenings or weekends and the directives were to take effect immediately. Additionally, further problems emerged when Public Health Units did not access the information at the same time as hospitals and did not have staff in place after hours when directives were sent out. In certain areas, this resulted in gaps between what the acute care sector knew and what public health officials knew. This disjuncture contributed to undermining confidence in public health, for example, when hospital staff phoned a Public Health Unit for advice.

There were also concerns regarding the delays in distribution and the approval process for issuing directives. Specifically, significant issues have emerged concerning delays at the political level that were regarded as unnecessary and unhelpful; for instance, it "became political and slowed down the process." Another submission to the Panel noted that there was "role confusion with increasing managerial and political involvement in SARS 2; [for example, the] SOC executive then included political office staff who wanted scientific content reviewed in [the] Minister's office – this was not helpful."

We learned that the organization, format and content of the directives made them difficult to interpret and created confusion over which directives were actually in effect. This may partly be attributed to the fact that there was a shortage of scientific evidence in the early directives, when there were many unknowns related to SARS. For example, a number of interviewees indicated that the early directives regarding service reduction were too broadly implemented and in some cases contributed to panic among staff and the public. The Panel recognizes that this concern appears valid in retrospect. However, early in the outbreak the extent of cross-hospital spread was completely unclear. In addition, delays in collecting and analyzing information, detailed elsewhere in this Report, resulted in the Ministry having limited real-time knowledge about SARS, which clearly contributed to the then-perceived need to establish 'blanket' directives.

The fact that healthcare providers and facilities have focused criticism so heavily on the directives is perhaps also indicative of broader issues in the absence of a comprehensive communications strategy designed to reach healthcare providers directly. The directives became a multi-purpose vehicle to convey all information – a role they were unsuited for, but a role they had to play in the absence of effective two-way communication.

Other issues that the Panel heard concerning the directives are as follows.

Broader participation in developing directives: It was suggested to the Panel that there should have been additional resources that included a broader team of experts to draft and assist with the directives. For example, some of critical care directives were specific to respiratory therapy and equipment and the Panel has heard concerns that the expertise of these professionals was not accessed early in the process. Similar concerns have been expressed of colleges and universities. While there are clearly instances where broader participation could and should have been pursued, we acknowledge the intense time pressure that existed to produce information for the field making broader stakeholder involvement immensely challenging.

We encourage the Ministry to establish in advance, as part of a comprehensive contingency plan, creative mechanisms for real-time input when establishing directives, which also include a scenario-based planning approach to text distribution.

One size fits all: The Panel has also heard that there was a sense that the initial directives used a 'one size fits all' approach. Understandably, the initial directives issued by the Provincial Operations Centre (POC) focused on acute care inpatient units where the initial risk was perceived to be greatest. As a result, these directives were difficult to adapt to a wide range of other settings, leaving many sectors with different interpretations of the directives. For example, non-acute organizations or facilities initially struggled with how to apply and implement the directives in their settings and some organizations experienced difficulty in understanding whether the directives met the specific needs of their institution or sector. Later in the outbreak, directives were produced for other health sectors. We noted in several submissions that the community sector was perceived as the lowest priority in terms of response time. The Panel recognized the complex factors that contributed to any confusion related to the development and dissemination of directives during this time of crisis.

Also, the intense time pressures did not always allow for directives to be established for organizations *outside of the affected area*. As one long-term care facility noted "Retirement homes were left entirely out of the loop." In another example, hospitals outside of the GTA were directed to cancel elective surgery. Although this may have been seen as appropriate at the time, the implementation of this directive left communities continuing to manage a backlog of elective surgery. One acute care hospital recommended that "it would have been helpful to have clearer differentiation between the GTA issues and the remainder of the province."

The Panel is acutely aware of the risk of 20/20 hindsight when reflecting on the province's emergency response. We must be sure that any future use of directives enables ongoing dialogue with key stakeholders and strives to achieve a balance between maintaining consistency and tailoring to local needs.

Capacity to implement: Organizations were not always ready and equipped to receive direction as it came out. They might have lacked the proper technology, designated point people to act on direction, internal roll-out plans, or expertise. The Ministry and healthcare organizations themselves need to consider their capacity to implement the directives, with realistic timelines and expectations for organizational response. We also need to recognize the critical importance in the future of designating point people in advance as part of the overall communications contingency planning.

"Consideration needs to be given to facility operations and the timing of releases (i.e., not at 9:00 or 10:00 p.m.) for immediate implementation without consideration of the need to read, digest, translate to individual site situations, mobilize resources to make changes, communicate the change and then implement it."

Two-way communication: One of the key challenges related to the early directives was that they were not supported by the necessary mechanisms for two-way communication that facilitate ongoing dialogue. This would have enabled the field to receive clarification, support with interpretation and provide input and feedback.

This gap was partially filled as the outbreak evolved; respondents and interviewees reported that the teleconferences and healthcare provider desks at POC/SOC were particularly effective communication methods. However, several key individuals involved in managing SARS were frustrated by the sheer volume of teleconferences and lack of related coordination. Clearly, with no comprehensive communications strategy for healthcare providers, the telephone became a less-than-ideal substitute.

"The strongest efforts in place at the time were teleconference calls. This provided you with current data and allowed a question period for clarification..."

A District Health Council shared that "The strongest efforts in place at the time were teleconference calls... This provided you with current data and allowed a question period for clarification. The weakest factor was that not every conference call was pertinent for the infection control person to sit in on."

As part of future planning, the Ministry should try to reduce the need for teleconferences by exploring creative approaches to using two-way communications. More frequent webcasts, chat-rooms, video conferences, and taped training broadcasts and information all provide opportunities for better real-time exchange of information, enabling direct clarification and feedback. Moreover, there are likely significant opportunities for these mechanisms to be supported by regional networks, as proposed earlier in this Report. For example, web-based communications was strongly endorsed, and, specifically, the pass-coded website that the Ministry established for healthcare providers was recognized as a useful tool. Although there have been criticisms that the access to information was too restricted and the website was updated too infrequently (resulting in it being underused), web-based vehicles are seen by many as a valuable tool to reach a number of providers in an emergency situation and could be used far more creatively in the future. The Ministry should also consider using web-based Q&As, web-based training, demonstration videos, etc.

Communicating to the Public

Visitor policies: We learned from frontline providers that there was significant confusion among the public; for instance, the public did not know what to expect when arriving at a healthcare facility. It was difficult to communicate the reasons for restricted visitor policies to the public, and this appears to have presented problems for many facilities when attempting to police the restrictions.

One acute care hospital suggested, "There needed to be more press about hospital restrictions. We had a terrible time with visitors and people coming in with outpatients for dialysis, etc. during the SARS outbreak. The public [was] really nasty and many times non-compliant. There needed to be more HEALTH TEACHING done [for] the public over the radio and in the newspaper."

A more defined provincial communications strategy regarding public education could have assisted frontline providers enormously, in speaking to the public as citizens, as well as health system users. As it was, with only a limited explanation of the rationale and few support tools (e.g. letters, scripts, signage, advertising, etc.) available, healthcare providers found themselves the buffer between sometimes distraught family members and relatives inside the facility.

Furthermore, the tensions over visitor policies could have been mitigated by clearer overall communications and the development of standard materials by a central resource (see below). As part of any future health emergency communications plan, the Ministry and healthcare providers need to communicate consistently to both the general public and to those members of the public who are patients or family members of patients at the time.

Standardized materials: The Panel heard that practical communications support tools, produced centrally (such as standardized signage, patient information letters/templates, basic materials on visitor restrictions, advertising, etc.) could have greatly assisted healthcare providers. Also, centralized media/public information centre(s), attached to an emergency response office, which all healthcare sectors could contact, would be a valuable resource. The more comprehensive and standardized information that can be provided to the public as users of the healthcare system, the greater the consistency and the lower the pressure on healthcare providers in times of emergency.

Public/community awareness: "If I were looking to do things differently, I would look for ways to provide patients with more reassurance and more information."[1] Public education is a critical element of any overall strategy for infectious disease control, in preventing unnecessary panic and controlling the spread of the disease.

"Often measures were communicated to the public via media conferences before hospitals had a chance to react. This generates distrust and fear in the public that then must be addressed by health care facilities, slowing down the infection control response time within the facility because resources are limited."
In addition, we heard from some organizations that their experiences were that the public was unaware of the health emergency. "We felt that many persons entering our hospitals during the crisis had a staggering lack of knowledge about SARS even well into the crisis.... People did not seem to understand the precautions we had in place when we didn't have a case."

Many organizations dedicated significant resources to this effort during SARS, including websites, daily press conferences, 24-hour hotlines, radio forums with the Commissioners of Public Safety and Security and of Public Health, newspaper ads, patient learning materials in different languages, etc. "We also fielded hundreds/thousands of phone calls ourselves." These efforts resulted in some real successes and included fairly significant public health risk communications in Public Health Units and hospitals. However, the Panel also heard that they would have benefited from additional centralized Ministry coordination, particularly in the following areas.

Translation: Fairly early on in the outbreak, one of the major Public Health Units had already begun translating materials for the public into 14 languages – and this was still not sufficient to address the needs of the population it served. "Provincial fact sheets, media presentations and web sites were not uniformly accessible to persons who did not understand English, French or Chinese since materials were not readily available in other languages. While TPH had translated materials into 14 languages, co-ordination and exchange of translated materials did not occur till late in the outbreak. Persons who were hearing or visually impaired also had difficulty getting information suitable to their needs." Originally, the Ministry translated material into Cantonese and French. Only much later, during SARS 2, did the Ministry provide more comprehensive translation.

Hard-to-reach communities: At one stage in the outbreak, it was reported that a number of individuals under investigation were living in shelters or other short-term housing. Communications materials and vehicles may not have been sufficient to meet this population's needs, nor

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was adequate planning in place to address broader issues such as quarantine support for this population.

Role of media: We have heard mixed feelings about the interaction with the media. Lead spokespeople encountered significant challenges in working with the press. An active media source was aggressively pursuing news stories throughout the emergency and continued to approach individuals throughout the health sector for comment. While several submissions indicated that they felt that the press conferences, while useful in conveying information over time, lost focus and may have contributed to overall panic, the Panel recognizes that at the time, this was a necessary component of sharing information with the public. Other submissions expressed concern that a greater focus was placed on preparing for the media response, without equivalent time and resources dedicated to getting information out directly to healthcare providers. "The public needs information but it needs to be presented carefully to prevent unnecessary panic. The perception was that once there were financial/political implications, the message to the public changed somewhat to decrease the severity of the situation."

Overall, while most respondents acknowledge the role of the media conferences in getting information out to providers, two specific criticisms were raised. Firstly, the broad spectrum of experts who rotated through the media conferences to answer various technical questions became confusing and reduced the consistency in the messages getting out. Secondly, the media conferences – especially after the World Health Organization put its travel advisory in place – ended up blending political and technical themes too frequently. While the press conferences were effective in getting information out to the pubic, the Panel encourages the Ministry to examine more effective ways to communicate to healthcare providers.

Given the challenges in getting up-to-date information into the hands of frontline providers, it is not surprising that the media was relied upon to a great extent.

[But]..."There were instances when media announcements were made before information [was] officially communicated to other facilities...[That] created a lot of angst and concerns from staff."

Given the challenges in getting up-to-date information into the hands of frontline providers, it is not surprising that the media was relied upon to a great extent. We can anticipate that in any emergency, the media will continue to play a central role, both reporting and conveying vital information to the public. The

Panel heard that many health care practitioners obtained information from the media during SARS, as opposed to other sources. "There were instances when media announcements were made before information [was] officially communicated to other facilities. We learned things from the news. [That] created a lot of angst and concerns from staff."

Although the media was relied on to inform the public and in some cases healthcare providers, there remains much anger among nurses and other healthcare practitioners surrounding the specific attention that the media paid to the nurse who travelled by GO Train and was portrayed to be a risk to the spread of SARS. This is a specific example whereby the media hindered morale and created considerable emotional trauma, for the nurse herself and for healthcare professionals who were working tirelessly to contain SARS and to support SARS patients and their families during the outbreak. As shared by the RNAO in their video *SARS Unmasked*, "This is the hardest time of your life and people are scared of you. ... It was lonely. Day after day they've gone in. They followed the precautions. These are responsible registered staff who have gone in even though they were afraid. Family pressure I'm sure ... wearing this oppressive gear....then to read in the newspaper an innuendo that somebody had done something "wrong" Tremendously resentful. Anger. Because people really did go the distance."

In addition, portraying the outbreak in Toronto juxtaposed with pictures of individuals of Asian origin, the media was seen by some as contributing to cultural stereotypes. The Panel also learned about filming that occurred in hospitals during the outbreak; this filming was perceived as disruptive to healthcare practitioners during this stressful time and an invasion of patient privacy.

We recognize the important role that the media can and will continue to play in any health emergency. Therefore, we encourage the Ministry to work with the media to ensure that they play a constructive role in supporting the timely dissemination of critical and relevant and information during an emergency.

Risk Communications

During the SARS crisis, the Ministry's communications approach was guided by the crisis communication strategy originally developed in 1999 and last revised in November 2003. What has clearly emerged from Ontario's experience during SARS is the recognition that the province needs to develop a strong provincial public health risk communications strategy as distinct from but clearly complementary to the Ministry's crisis communications strategy. This approach also requires that clear and distinct skills set unique to public health risk communications be in place.

This first Report of the Panel shares the perspective of groups and individuals about various aspects of the province's general approach to communications. It does not analyze this input based on risk communications theory and practice. However, the Panel recognizes the importance that risk communications must play in any future preparedness and response to a health emergency.

Risk communications is evolving to address a fundamental dilemma in the dialogue between government and industry with the public. "The risks that kill people and the risks that alarm them are often completely different. There is virtually no correlation between the ranking of hazards according to statistics on expected annual mortality and the ranking of the same hazards by how upsetting they are. There are many risks that make people furious even though they cause little harm – and others that kill many, but without making anybody mad." Risk communications has emerged to address some of the many challenges that need to be overcome when communicating with the public; challenges such as inconsistency, confusing risk messages, and lack of trust in information sources.[2]

Many strong emotions are evoked during a health emergency that involves risk. These may include fear, anxiety, and frustration. The key perspective that risk communications brings is the need to share practical information about the nature of risk. In a manner that allows for the relative risk to be contextualized and understood in a balanced manner by the general public, there is much valuable existing and emerging literature and practical assistance in this field upon which the Ministry could draw. The Panel, in making the recommendations below, would urge examination of approaches that have proven successful with both Health Canada and the CDC. Additional efforts will be required to effectively address public health risk communications and to ensure that the approaches developed are wholly integrated with the Ministry's overall communications strategy. The Panel will explore this further in our final report.

Recommendations

30. By February 15, 2004, the Ministry should ensure that a health sector communications infrastructure is in place to reach all key stakeholders in a health emergency. This infrastructure should enable use of e-mail, facsimile, Internet and other technologically advanced modalities. It should be two-way, multi-functional and enable the Ministry to reach healthcare practitioners, healthcare organizations and institutions, support staff, educational institutions, emergency medical services, professional associations, licensing bodies and unions. This infrastructure should be tested and evaluated by March 31st, 2004.

    a. This infrastructure should facilitate the development of a formal Public Health Alert Network (PHAN), to provide communications concerning infectious disease outbreaks and public health threats to all healthcare providers.
    b. As critical to enabling this infrastructure, electronic literacy should be established as a basic standard of practice for all newly graduated healthcare practitioners within two years. Methods of ensuring electronic competency of existing healthcare providers should be explored in collaboration with professional regulatory colleges within three years.

31. By January 15, 2004 the Ministry should review and update provincial crisis communications protocols to support the dissemination of information during a health emergency. These protocols should ensure:

    a. Early designation of a credible and consistent source of spokesperson(s) at the provincial level so as to deliver uniform and clear messages.
    b. Mechanisms are in place for two-way communications, which allow recipients to ask questions and receive clarification.
    c. Key personnel have specific communications training.
    d. Communications approaches are rapidly available in diverse languages and formats.

32. By March 1, 2004, the Ministry should develop a provincial public health risk communications strategy as part of overall contingency planning for a health emergency. This strategy should be based upon international best practices in risk communications, and should be shared with local and federal governments, and healthcare organizations to aid in the coordination of efforts and understanding of respective roles. The basis of this communications strategy should:

a. Build on and upgrade the use of proven effective communications vehicles, such as the use of web-based systems during SARS.
b. Include targeted approaches and tools for different audiences, such as healthcare providers and patients.
c. Be based upon strong links with Public Health Units
d. Encourage and build upon public health risk communications networks.
e. Clearly identify provincial spokeperson(s) in a health emergency, building on trust and credibility.
f. Ensure that communications methods used during a health emergency are practical in nature. If directed to healthcare workers, communications should include proper techniques and best practices.
g. Incorporate effective means of educating the public about necessary screening measures, changes to visitor policies, and temporary restrictions of healthcare services. This should include the production of standardized material and notices to distribute to patients.
h. Make provisions for briefing sessions between the Ministry and healthcare providers, in the form of a webcast or other real-time communication mechanism, *shortly before* any public broadcast on urgent matters of public health.
i. Clarify, update and streamline policies and procedures regarding the use of the media in an emergency. This should include the continued use of effective media buying services to deliver public service messages.
j. Optimize use of health information hotlines for the public as part of overall contingency planning.
k. Include mechanisms to evaluate performance.

33. The Ministry should continue to liaise with Health Canada to ensure consistency and to clearly designate points of contact regarding risk communications plans. Formal memoranda of understanding should be reviewed and updated by March 1, 2004 so that they clearly outline roles and responsibilities. The Ministry should commit to review and update such agreements on a regular basis. Such reviews should include appropriate public health expertise and representation from the Office of Health Emergency Preparedness (OHEP).

34. The Ministry should immediately ensure that any written communication to healthcare providers during a health emergency, is:

a. clear, concise, and operationally viable
b. based upon scientific evidence
c. supported by mechanisms for rapid, two-way communications and clarification.

35. By March 1, 2004, the Ministry should develop an enhanced plan to educate the public about possible or actual threats to public health and appropriate infection control measures. Healthcare organizations and professional associations should be engaged in developing and implementing this plan to ensure coordination of effort and to identify the most effective tools for healthcare providers to use in communicating with the public.

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Chapter Five: Surveillance

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Introduction

Public health surveillance has three basic component activities – data collection, data analysis, and disseminating information to those who plan and carry out public health programs. Effective surveillance has the capacity to isolate and identify early information that may signal an infectious disease outbreak, allowing for evidence-based decisions when responding to such outbreaks and helping mitigate their impact.

West Nile Virus offers one recent example of a successful surveillance initiative.

West Nile Virus (WNV) offers one recent example of a successful surveillance initiative. In the case of WNV, detecting and testing dead birds and mosquito traps were used as a sentinel for the potential arrival and spread of this mosquito-borne disease. Ontario and other jurisdictions have used this information to tailor interventions, determine the rate of spread, and guide potential actions such as the use of larvicides.[1]

A different type of example is the role of surveillance in detecting and responding to potential bio-terrorism threats. In the wake of the US anthrax scares of October 2001, the New Jersey Department of Health and Senior Services, together with the Centers for Disease Control, began formal surveillance for the clinical signs and syndromes that were compatible with anthrax.[2] The objectives of this surveillance initiative were improved case findings, characterizing the population at risk, and determining the magnitude of the potential outbreak.

In Canada, both the National Advisory Committee on SARS and Public Health[3] and the Standing Senate Committee on Social Affairs, Science and Technology[4] have noted that surveillance efforts here in Canada lack the degree of investment and comprehensiveness demonstrated in the U.S. To some extent, this has been due to three distinct barriers: a lack of technological capacity, a lack of analytical capacity, and privacy and data use concerns.

However, coordinated work has been underway in Canada for several years on a range of surveillance projects, as part of the Canadian Integrated

Public Health Surveillance (CIPHS) collaborative. Specifically, CIPHS is charged with:

- Promoting a uniform public health information management concept, and ensuring consistency in new pan-Canadian initiatives.
- Providing overall strategic direction for developing shared public health applications and databases, and assisting in the definition of new requirements.
- Coordinating future development and ongoing maintenance of shared applications.
- Ensuring the security of data collected.
- Fostering collaboration between CIPHS members, and linking with government and non-government agencies.[5]

In any effective surveillance strategy, technology plays an increasingly critical role...Information and information technology systems...provide the spine for effective real-time data reporting and analysis.

This collaborative process, while regrettably slow, holds significant opportunities for improved national cooperation toward creating a comprehensive federal/provincial/territorial surveillance plan. This is an essential exercise, as any effective surveillance strategy should ideally be national in scope and allow for comparable analysis and deployment of data across jurisdictions.

In any effective surveillance strategy, technology plays an increasingly critical role. It is essential to have a well-developed system for real-time data sharing and reporting, and for the rapid dissemination of surveillance information. Information and information technology systems increasingly provide the spine for effective real-time data reporting and analysis.

The Panel heard that during SARS tremendous efforts were made to implement effective screening and surveillance. These efforts were hampered by a number of major pre-existing challenges quite apart from the outbreak, including an inadequate information technology system that allowed only limited data analysis in many areas.

Key Learnings

Surveillance capacity: SARS brought to light the lack of and need for a comprehensive infectious disease surveillance infrastructure in Ontario, with the capacity to link the acute and long-term care, community, and public health sectors. The Health Surveillance Working Group agreed in 2002 that such a health surveillance infrastructure must be developed.[6]

To-date, however, efforts have been largely episodic and disease-specific.

The purpose of the Health Surveillance Working Group is to advise on the development and coordinate the implementation of a national network approach that: integrates Canada's health surveillance networks; promotes the collection of data and its use for health surveillance purposes; builds capacity to undertake health surveillance; and, improves access to health information.

However, there has not been a rapid or comprehensive movement toward integrated and effective infectious disease surveillance either across the province or nationwide. The Standing Senate Committee on Social Affairs, Science and Technology recently stated in this regard that "the lack of surveillance activities is a matter of considerable urgency,"[7] echoing concerns previously raised by the National Auditor's report. These include the lack of financial capacity to maintain and establish chronic disease surveillance systems and the failure of Health Canada to achieve health surveillance activities established in 1999-2000.[8] In addition, the National Advisory Committee has called for:

- Investments to enhance disease surveillance and link public health and clinical information systems.
- Regional capacity for infectious disease surveillance, outbreak management, and related infection control activities.
- A new Network for Communicable Disease Control that would link Federal/Provincial/Territorial (F/P/T) activities in infectious disease surveillance, prevention, and management.
- A new Canadian Agency for Public Health that, in partnership with the Network for Communicable Disease Control, would give priority to infectious disease surveillance, including providing technical advice, funding, and programs to support training.
- Support for hospital-acquired infection control, including hospital surveillance as a priority program.

Information technology infrastructure: Similar to the National Advisory Committee, the Panel heard that poor systems and weak information dissemination capacity were two key impediments to the controlled response to the SARS outbreak. Failure to implement a "seamless and effective system prior to the SARS outbreak for communication of routine infectious disease alerts...may have contributed to...harming Canada's economy and reputation."[9] At the onset of SARS, Ontario did not have an adequate information technology (IT) network in place to address this kind of outbreak.

IT infrastructure and two-way communication capabilities varied between municipal, provincial, and federal governments, across health units and agencies, and among health service providers. For this reason, it was not possible to gather epidemiologic information from the field in a timely manner, centralize data input, and disseminate information to the health and public sectors. This inability appears to have been compounded by a series of perceived or real policy, administrative, and other barriers to information access experienced by both the OSSAC and the broader research community.

Existing networks: In addition to dealing with the evolving case definition for SARS, the province, Public Health Units, and healthcare providers had to draw on what already existed and attempt to create an infrastructure as the SARS crisis unfolded. As the National Advisory Committee and others have noted, a combination of technical, non-technical, and ad hoc data collection instruments were used at the outset of SARS. The lack of central resources and analytical capacity created tremendous challenges in formulating accurate, consistent, and reliable information. In 1997, the Provincial Auditor's Report observed that the Reportable Disease Information System (RDIS) contained limited information about the extent and results of contact tracing.[10] To help monitor the effectiveness of Public Health Division programs, the Auditor – after highlighting these concerns – went on to request further information from the Ministry. The Ministry response to the Auditor stated "a new information system for tracking reportable diseases is in early development" and "improved management of contacts by the local health departments and more complete data for monitoring the effectiveness of the Tuberculosis Control Program" would be achieved. The Auditor further recommended improvements be made to the effectiveness of contact tracing. To this the Ministry response was "it is expected that the enhanced information system [for tracking reportable diseases] will allow more in-depth monitoring of contact tracing."[11] To-date, six years later, the Ministry has still not developed a method for improved contact management by local health departments. No 'enhanced information system' was available to manage the reporting of SARS, six years after the Ministry responded to the Provincial Auditor's comments.

For instance, the RDIS would normally be used by the Public Health Units to report diseases. However, early on, the RDIS was found to be an unsuitable instrument for this type of reporting. RDIS was antiquated (developed in the late 1980s), and was originally created to be a case management tool for public health surveillance of reportable diseases.

Another data collection instrument that was used during SARS was a web-based application known as the Integrated Public Health Information System (iPHIS). Since 1996, the federal and provincial governments have been working to implement iPHIS across Canada for public health case management. During SARS, Public Health Units attempted to implement a SARS component for iPHIS that had been originally developed between Health Canada and the Ministry. However, the system could not be created overnight and proved to be both labour-intensive and unable to capture the necessary information. Attempts to combine iPHIS with a Microsoft Access database used for line listings, with support from Health Canada, were also discussed but never implemented.

Furthermore, iPHIS had never been designed to facilitate the management of quarantine or to assist with contact tracing. In the midst of SARS, Ontario desperately required effective quarantine management tools and inference-based systems for contact tracing, given the large numbers of people in quarantine and the complex patterns of transmission. Several systems were examined, including Powercase, used by the Ontario Provincial Police for case investigations, yet no solution has emerged to date to address this problem.

Ontario desperately required effective quarantine management tools and inference-based systems for contact tracing.

Ultimately, SARS data was primarily collected using line-lists, similar to spreadsheets, received from the Public Health Units. These lists didn't allow for a rigorous analysis of the data, thereby delaying the process and wasting valuable analytical time and resources.

The province also acutely felt the lack of a standardized electronic data collection instrument, which could have been tailored as the case definition for SARS gradually emerged. Without an electronic surveillance and data entry tool, Ontario a province with considerable resources, had to rely on paper-based systems and/or a number of locally crafted 'systems'. In certain cases, these systems lacked consistency and made the final compilation of data extremely challenging.

In the end, data was reported simply as the daily total numbers of suspected and probable cases, as further analysis was not initially practical or feasible. However, some additional fields such as age and gender were added later. The Panel heard that a flexible and robust IT system to handle major outbreaks is urgently needed – such a system would link the various components of a communicable disease surveillance system. The province needs access to timely and accurate data sharing and integrated reporting – hospital emergency rooms, walk-in clinics, labs, physician

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offices, etc. – to allow for direct data entry, linkages across jurisdictions, and to track contacts in quarantine and manage information.

Epidemiologic and analytical capacity: During the SARS crisis, it was impossible to perform anything but rudimentary analyses. No single, comprehensive means of data collection existed, so only small amounts of data useful for statistical analysis were available. Because of this, the Panel found that both Public Health Units and the Public Health Division of the Ministry could perform only limited analysis in a timely manner. In any event, relying on such findings from statistical analysis of a small number of data would have been problematic; statistically, it is an accepted principle that results from analyses of small numbers of data are not generalizable.

...epidemiologcal and biostatistical expertise at the provincial level during the SARS outbreak was clearly insufficient to meet the need.

The lack of trained staff compounded this problem. Analyzing surveillance data requires contributions from trained professionals such as epidemiologists, statisticians, and biostatisticians. The Panel found that epidemiological and biostatistical expertise at the provincial level during the SARS outbreak was clearly insufficient to meet the needs.

Inconsistent data: There was some consistency in the data collected by Public Health Units, although it was far from comprehensive. However, we heard that acute, long-term care and community-based facilities may or may not have collected similar information from suspect cases. Indeed, the failure to be able to electronically deploy a single measurement instrument encompassing comparable data, led to an inability to critically analyze and respond to 'signals' in health data.

'Signal' refers to useful information conveyed by some communications medium, and 'noise' refers to anything else on that medium. In an all-electronic surveillance system, collecting data from emergency departments, 911 calls, physicians, laboratories and even analyzing and recording medicine purchases from a local pharmacy chain poses one problem, the signal-to-noise ratio: there is an incredible array of information to analyze.[12] In general, this ratio refers to the amount of useful information (the signal) in relation to anything else (the noise).

Put simply, it is hard to know if the surveillance system has been worth the expense. For instance, it clearly identifies flu season but probably does not prevent people from getting sick. "These systems are not for everyone; they're unproven. We're not sure they can pick up on something if it does happen. We're hoping they will."[13] We do not have collection devices at this point fast enough to be able to know what is going on. Indeed, the technology is there to do it, but the process is not. Therefore, the surveillance system needs to have a pre-determined way of evaluating its worth as disease definitions change and 'noise' is reduced.

Data sharing protocols: Individuals in the field and those associated with providing scientific advice on SARS to the Ministry, told the Panel of persistent data problems and the difficulty in obtaining timely data. The National Advisory Committee also noted the perception among some at the federal level that Ontario was providing insufficient data in a timely manner, or forwarding it inconsistently. Regardless of the accuracy of the perceptions, one thing seems apparent - either clear, consistent data use protocols and appropriate liaison protocols were not adequately in place during SARS, or, if they were, their content was not widely known to the participants.

While there may have been progress in this area, the Panel sees the need for an urgent review and reaffirmation of all appropriate data access and sharing protocols. This review should look at how these protocols may pertain to federal/provincial/municipal exchanges of information, in both emergency and non-emergency situations, as well as processes to allow disease research that is pertinent to identifying and containing an outbreak, and other research purposes.

Upon completing this review, the existing governing framework reflected in these agreements should be made public. This would provide a clear indication of the rules and limitations regarding data access should a future outbreak occur.

Legislative barriers: The Ministry should appropriately review actual or potential legal barriers to accessing and sharing surveillance and case information, since this posed yet another obstacle in analyzing data collected during the SARS crisis. Although this problem was emphasized during the outbreak, we recognize that there is an ongoing, systemic problem in sharing data for analytical purposes.

The Panel recognizes that proper safeguards are needed to ensure the privacy, confidentiality, and security of information-appropriate data. Yet this data must also be made available for analytical purposes in a timely fashion. The Panel recognizes the potential need for personal identifiers, for example, to contact the patient in certain circumstances. To achieve this, there must be an encryption process designed within the surveillance system to provide for different levels of access to identifiable information, while protecting the privacy of the specific individual. Data management processes and policies must therefore be implemented to make effective and adequately protected use of the information collected.

We heard that problems and a lack of clarity existed on both sides of the spectrum. For example, a number of submissions referred to the difficulty accessing data, while others pointed out that personal information was being transmitted or accessed by the Ministry, federal government, and outside researchers at certain times, without a clear understanding on the part of some health units of the authority to access such data.

In this regard, the Panel urges a thorough and detailed review of the provisions of *Health Protection and Promotion Act* (R.S.O. 1990, c. H.7), the *Freedom of Information and Protection of Privacy Act* (FIPPA) (R.S.O. 1990, c. F.31) and its municipal equivalent, *the Municipal Freedom of Information and Protection of Privacy Act* (MFIPPA), R.S.O. 1990, c. M.56. This review should examine any areas of actual or perceived lack of clarity regarding the appropriate legal authority to collect, use, or disclose personal information for research purposes (potentially including identifiers) in the context of an outbreak. This review should be balanced with a clear set of publicly available rules regarding who is or is not authorized to access identifiable information.

In addition, the Panel heard that the inability of some healthcare providers (such as Emergency Health Services (EHS)) to access an effective single identifier (potentially all health card numbers), such as a Unique Patient Identifier, impeded the ability to cross-link data for appropriate infectious disease tracking and research. For example, this issue arose within EHS given the significant role that the Provincial Transfer Authorization Centre played in managing patient transfers during SARS. The fact that infectious disease surveillance initiatives were unable to use a patient's Ontario Health Insurance Plan number as a verification and potential surveillance tool should be examined.

Towards a Comprehensive Surveillance System in Ontario

The Panel strongly supports the recommendations of the National Advisory Committee on SARS and Public Health and the Standing Senate Committee on Social Affairs, Science and Technology regarding the urgent need to establish a national surveillance system. Many of the barriers that impeded the deployment of timely and effective surveillance during SARS are long-standing systemic issues. Left unresolved, they will impair the ability to both detect and respond effectively to a future outbreak. A robust real-time surveillance and early warning system, using global, national, and local epidemiology was lacking.

While the Panel heard that progress has been made in a number of key areas post-SARS – such as the establishment of a centralized epidemiologic unit (Epi-Centre) at the Ministry – there is clearly still a long way to go. Most pressing in this regard are the continued absence of an operational information technology system across all Public Health Units, and the need for rapid implementation of an effective operational laboratory information system to which Public Health could be linked.

Ontario has the basis to begin to build an effective surveillance infrastructure. Firstly, there is broad recognition from those outside of public health of the need for this infrastructure and of its relevance to the day-to-day activities of all healthcare providers.

Ontario has the basis to begin to build an effective surveillance infrastructure.

Secondly, the National Advisory Committee and the Senate Committee have suggested that Canada Health Infoway should support the renewal of the public health infostructure. Canada Health Infoway offers an opportunity for a potential infusion of resources, and an ideal vehicle for ongoing national collaboration.

Infoway's mission is to foster the development and adoption of electronic health information systems with compatible standards and communication technologies across Canada, so that Canadians and their healthcare providers will have timely, appropriate, and secure access to the information they need, whenever and wherever they enter the healthcare system.

The Panel also heard that Ontario possesses a range of resources that could potentially be used to craft a more robust surveillance framework. This includes formal surveillance programs (for example, for West Nile Virus, communicable diseases, and pandemic influenza), and a number of informal partnerships for surveillance, such as between Central West Ontario Health Units and Central West Ontario Health Planning Information Network (CWHPIN).

For example, CWHPIN is one of five Health Intelligence Units established by the Ministry. It is made up of seven Public Health Units and four district health councils, in the districts of Brant, Haldimand-Norfolk, Halton, Hamilton-Wentworth, Niagara, Waterloo, and Wellington-Dufferin, as well as McMaster University Faculty of Health Sciences. The mandate of this partnership includes identifying community needs; disseminating information; providing health intelligence; supporting professional and skills development; and, conducting evaluation and research.[14]

There are also opportunities to broaden the information collection capacity of Telehealth as a syndromic surveillance tool. This provincial health advisory line was established in November 1998 to provide health advice by telephone.

The Patient Transfer Authorization Centre (PTAC) and e-Physician Project (ePP) may also hold opportunities worth examining. PTAC, the centralized coordination of inter-facility patient transfers, was established during SARS to control the inter-facility spread of SARS. It is a potentially useful adjunct to an infectious disease surveillance plan. The central repository may provide an early warning system for any unusual types and levels of activity that had not yet been identified locally due to the dispersed nature of the local presentation.

ePP is jointly sponsored by the Ministry, the Ontario Medical Association, and the Ontario Family Health Network. Its goal is to implement high quality, integrated, and standardized IT solutions to automate physician practices. This too may provide comprehensiveness to a provincial surveillance plan.

It is clear that Ontario is capable of creating a highly effective surveillance system. This was demonstrated in July 2002, during World Youth Day in Toronto. Toronto Public Health implemented the most comprehensive example of infectious disease surveillance seen in Ontario, making a clearly articulated syndrome definition available at the event sites, in four Toronto emergency rooms, in pharmacies, through 911 services, and through the coroner for the City of Toronto. These measures demonstrated that even without a fully electronic platform, robust disease surveillance activities can occur and have multi-sectoral involvement.[15]

Toronto Public Health implemented the most comprehensive example of infectious disease surveillance seen in Ontario [at World Youth Day in July 2002].

Clearly, it will require significant work, time, and resources to achieve a comprehensive surveillance framework for infectious diseases (and beyond). The Panel has heard much about SARS surveillance, the proposed approaches, and some of the challenges faced during SARS. The Panel agrees that it is of paramount importance to develop and implement an effective surveillance framework, given the fears of an imminent return of a respiratory infectious disease outbreak.

We understand that there are several activities occurring within the Ministry and at a national level, both shorter-term and longer-term, related to surveillance activities for SARS and other infectious diseases. However, it is not clear how all of these pieces fit together. To assist healthcare providers in understanding the overall picture, the Ministry should codify, formalize, and coordinate activities, and clearly laying out how all of these initiatives link together.

Therefore, we urge the Ministry to establish a clear process to examine future infectious disease surveillance needs and opportunities, as well as mechanisms for broad scientific and health sector involvement. Any infectious disease surveillance plan should, at a minimum, include local Public Health Units, community agencies, and acute and long-term care facilities. Over time, this data plan may expand to the private and not-for-profit sectors and community settings.

Any infectious disease surveillance plan should, at a minimum, include local Public Health Units, community agencies, and acute and long-term care facilities.

A comprehensive infectious disease surveillance plan province-wide requires a sophisticated information technology (IT) infrastructure to ensure common standards across the province, and to enable rapid access to comprehensive surveillance plans. The IT systems used by health service professionals need to be developed urgently. The Panel recognizes that contact tracing and case management of infectious disease require an integrated IT infrastructure to better support evidence-based decision making.

Recommendations

36. The Ministry should build on work undertaken to-date and develop a comprehensive, provincial infectious disease surveillance plan by June 30, 2004. This work should:

    a. be carried out by a multi-disciplinary group, which includes scientific, government, information technology and healthcare partners, and which is accountable to the Minister of Health and Long-Term Care
    b. involve aligning and clarifying the roles of all post-SARS provincial advisory committees with working groups examining the issue of disease surveillance
    c. examine any opportunities or barriers to using existing tools such as Telehealth and Telemedicine
    d. include province-wide surveillance for facility-acquired infections.

37. The Ministry must ensure that an appropriate information technology infrastructure is in place to fully support the provincial infectious disease surveillance plan by June 30, 2004.

38. The Ministry should expedite the full implementation of the Integrated Public Health Information System (iPHIS), together with any required design modifications, across all Public Health Units in the province by June 30, 2004.

39. The Ministry must move rapidly to fully implement the necessary information technology supports to allow for contact tracing and quarantine management by Public Health Units by June 30, 2004. If this cannot be accomplished through design modifications to iPHIS, other suitable information technology platforms must be used.

40. The Ministry should establish a working group with representation from healthcare stakeholders, researchers, and the Ministry to review on an urgent basis all data access and data sharing protocols between Public Health Units, the Ministry, municipalities, and the federal government. This review should identify how and to whom identifiable personal information is authorized to flow in the event of an outbreak. The working group should submit a report to the Minister by March 31, 2004 outlining the common data sharing structure, reporting relationships, and other common requirements of the data access and sharing protocols.

41. The Ministry should undertake a detailed legislative review of the *Freedom of Information and Protection of Privacy Act* and the *Municipal Freedom of Information and Protection of Privacy Act* in the context of:

   a. the reporting requirements set out under the *Health Protection and Promotion Act*
   b. identifying potential barriers to the sharing of information in appropriate and timely manner
   c. ensuring appropriate protections for personal information.

   This review should be completed by March 31, 2004.

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Chapter Six: Human Health Resources

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Introduction

A healthcare system is built upon the foundation of the individuals who enable it to function on a daily basis. During the SARS outbreak, healthcare personnel went above and beyond to ensure that Ontario's healthcare system continued to work. However, this came at a great personal price.

Many healthcare workers became ill or were quarantined as a result of SARS. Many suffered the strain of working excessive hours and double shifts, wearing uncomfortable protective equipment, and enduring stigmatization by friends and neighbours. And many, as one respondent described, suffered in other ways: "The psychological impact of the SARS outbreak on healthcare workers cannot be over emphasized. Significant stigmatization of healthcare workers occurred. Staff were highly anxious at times, and this was complicated by the media attention and inconsistent information around SARS. Examples that some staff experienced were: being unable to get childcare, being called by schools and told to keep their children home. This may have longer term recruitment and retention repercussions for healthcare workers."

One staff member of a Toronto area hospital that was severely affected by SARS described the experience poignantly: "The word SARS instilled immense fear not just in the community, but within the walls of [the hospital] itself. With some 35 staff members contracting the disease, and one of our own dying from SARS, it was a threat that was all too real. But day after day our staff came to work, setting aside not only fears about their own safety and well-being, but an even greater dread about taking the disease home to their loved ones. Home, in many cases, provided little respite, as hospital staff became outcasts in the community. Shunned and isolated by family and friends alike, some reported seeing people cross the street to avoid even walking near their homes. Many staff felt – and were – truly alone. The sense of isolation was particularly acute for staff who contracted the disease. Their families could not visit them in hospital, and as soon as they were discharged they were sent into quarantine. Once home, Public Health and other officials visited them wearing protective gear, further frightening neighbours and friends. One of our staff members returned home only to learn that they were no longer welcome – their housemates had left our colleague's belongings outside. Media hysteria exacerbated the situation, creating what came to be called the "SARS pariah syndrome", making life outside the hospital difficult for healthcare workers, patients and their families. Despite the danger, our staff persevered, braving the crisis day by day."

On a more systemic level, SARS brought to a head longer-standing issues around the supply and staffing of healthcare professionals. The report of the National Advisory Committee on SARS and Public Health made a number of recommendations concerning the need for a health human resources strategy in the public health sector.[1] The Panel agrees with these recommendations, and endorses the position taken by the National Advisory Committee that Ontario needs an increased number of professionals, as well as educational and career opportunities, in public health. In particular, the National Advisory Committee has recommended that the federal government urgently work toward creating and supporting training positions and programs, as well as career paths and opportunities for community medicine physicians, field epidemiologists, infection control practitioners, public health nurses, and others working in public health-related fields. The Ministry of Health and Long-Term Care must join in this work and advance it at a provincial level.

Key Learnings

Supply of healthcare workers: Human resource issues held a prominent place and raised concerns beyond the realm of the public health sector throughout the submissions made to the Panel. The acute shortage of human resources across all sectors and in all fields of health care was identified as an overarching problem, which was also all too apparent prior to SARS. In particular, SARS highlighted and reaffirmed the very limited number of certain professionals in specific areas, namely nurses with specialized training in emergency and critical care; physicians with specialty training in infectious disease; Medical Microbiologists and epidemiologists; public health professionals; occupational health staff; and respiratory therapists.

"The overall system is stretched so that it is generally very difficult to find staff at the best of times. This means that allowing some excess capacity in the system in terms of numbers of staff becomes very important."

In the opinion of one respondent "The overall system is stretched so that it is generally very difficult to find staff at the best of times. This means that allowing some excess capacity in the system in terms of numbers of staff becomes very important. Action on recommendations made in previous reports on human health resources...need to continue to be implemented and monitored for their effectiveness."

The Panel is aware of the numerous reports and studies that have raised issues around the supply of health professionals over the past five years and of the many constructive recommendations contained therein. The Panel is also aware of the need to respect the mandate that it has been given. In formulating its final recommendations to the Minister, the Panel will reflect and draw upon this extensive body of work and will outline further recommendations in this area.

Concerning the shortage of nurses, the Nursing Effectiveness, Utilization, and Outcomes Research Unit, a collaborative project of the University of Toronto, Faculty of Nursing and McMaster University School of Nursing, released a report in October 2003 indicating that, despite an increase in the overall number of nurses in Ontario since 2000, Ontario will continue to suffer from serious nursing supply issues over the next few years.[2] In addition, the second progress report of the Joint Provincial Nursing Committee on the status of implementation of recommendations made pursuant to the 1999 Nursing Task Force is due to be released in late 2003 or early 2004. Among the recommendations addressed in this progress report will be those related to nursing supply and opportunities for education in nursing.

Infection control practitioners: It became very apparent during SARS that there is a shortage in the number of infection control practitioners (ICPs). These professionals are in short supply in the acute care sector, and, even more critically so, in long-term care, community care, and public health.

ICPs are responsible for the management and day-to-day implementation of infection control programs within a facility or organization, including infection surveillance, prevention, and control activities. ICPs can possess varying educational and professional backgrounds, including nursing, medicine, respiratory therapy, public health, and environmental health.

In 1985, as part of its overall work on hospital-acquired (nosocomial) infections, the US Centers for Disease Control considered the appropriate ratio of ICPs to acute care beds needed to support an infection surveillance and control program. The ultimate recommendation was a minimum practitioner-to-bed ratio of 1:250.[3]

In 2001, the Canadian Infection Prevention and Control Alliance recommended that this ratio be reduced to 1:150-175 acute care beds, and that the minimum ratio in the long-term care setting be 1:150-250. As well, the Alliance stressed the need for infection control expertise in the community and home care settings.[4]

In 2002, the Association for Professionals in Infection Control and Epidemiology (APIC) suggested a ratio of 0.8 to 1 ICP for every occupied acute care bed, or 1 ICP per 100 to 120 beds.[5] Health Canada has been considering a similar standard of 1:115. The APIC study further recommended that staffing of ICPs must consider the number of occupied beds as well as include the scope of the infection control program, the complexity of the healthcare facility or organization, the characteristics of the patient population, and the unique or urgent needs of the facility and community.

A recent study suggests that almost 50% of Canadian acute care hospitals are not able to meet the 1985 standard [of infection control practitioners for every occupied acute care bed], and almost 80% do not meet the 2001 standard.

A recent study suggests that almost 50% of Canadian acute care hospitals are not able to meet the 1985 standard, and almost 80% do not meet the 2001 standard.[6]

Epidemiologists: SARS also highlighted the shortage of another highly skilled professional – the epidemiologist. In general terms, an epidemiologist is a person who studies and investigates how and why disease is spread. Epidemiologists work both in the field of communicable disease and non-communicable disease, such as cancer. In addition, there are both 'clinical epidemiologists' and 'field epidemiologists,' among others. A clinical epidemiologist studies identified patients with a disease, compared to the more academic pursuit of the causes and risks of developing a disease. A field epidemiologist investigates epidemics and outbreaks, and is a useful public health resource for implementing measures to protect and improve the health of the general public. The Panel heard that there is a need for epidemiologists, clinical epidemiologists, and field epidemiologists with skills specific to communicable disease control. These are required within both the public health and academic spheres. The Panel will draw on this information in preparing its final report.

In addition, there are a few physicians trained in infectious disease control who act as medical directors of infectious disease programs in Ontario and provide medical oversight and guidance to an overall infection control team. These individuals are referred to as 'hospital epidemiologists' in the United States. The Panel is aware that there is an undersupply of these physicians, and this may be partly due to the fee-for-service remuneration system for physicians. Infection control activities are currently not included in the provincial fee codes used to reimburse physicians. One possible solution would be to seek an amendment to the Ontario Health Insurance Plan (OHIP) Schedule of Benefits to incorporate infection control activities. Another potentially more feasible solution would be to remunerate these professionals on an alternate payment basis, through targeted funding of infection control programs by the Ministry, as discussed in Chapter Two.

Community medicine: In its Report, the National Advisory Committee noted the acute shortage of both public health physicians and public health nurses, including the current high vacancy rate for Medical Officer of Health (MOH) positions in Ontario. This is consistent with what the Panel heard from the MOHs, as discussed in Chapter One. In addition, the National Advisory Committee Report has well-documented the lack of availability of training programs in community health, both as residency programs and as re-entry positions for practicing physicians.

The Ministry currently funds 20 family medicine re-entry training positions and 20 specialty re-entry training positions for currently practicing physicians. Community medicine is included among the specialties targeted for these re-entry positions. Physicians accepted for re-entry must return service in an under-serviced area.
Re-entry positions are also eligible for the Ministry's Free Tuition Program, whereby tuition costs are offset in exchange for a full-time return-of-service in an eligible community. The Panel suggests that re-entry positions targeted toward community medicine be increased in number on an incremental basis over the next three years, with clear targets based on need. As well, parallel tuition reimbursement programs must also be made available to enhance efforts at public health revitalization.

Microbiologists: The Panel learned of the critical shortage of laboratory microbiologists, particularly within the Ontario Public Health Laboratory (OPHL). The Panel is aware that steps have been taken to recruit an additional microbiologist. However, based on external comparative research undertaken to-date, we recommend that as an immediate measure, at least two additional microbiologists be employed above existing and planned hirings, while a more detailed resource assessment is completed by the Panel and included in the final report.

Occupational health and safety (OHS): The need for an increased awareness of and mechanisms to ensure health and safety within the healthcare environment became very apparent during SARS. The Panel heard that OHS is an important part of healthcare health and safety, together with such areas as infection control.

OHS is a legislated requirement imposed upon both employers and workers. OHS programs are intended to provide a safe and healthy workplace for employees by reducing workplace hazards, including the hazard of transmitting infectious diseases to and from workers. As such, a significant component of OHS programs in the healthcare setting must be infection control to minimize transmission risks. Specifically, employers are required to establish and put in place infectious disease control measures and procedures. Despite this, it became apparent during SARS that the role and scope of OHS in relation to infection control are not clearly defined.

The Panel heard that facilities and organizations frequently have difficulties meeting the requirements of the *Occupational Health and Safety Act*.[7] Those in the field have indicated that OHS has become a low priority in healthcare, and that the mandate of OHS departments within, for example, hospitals, is often unclear.

Existing staff are overworked and frequently experience limited input into managerial decisions that impact health and safety. In addition, the Panel heard that OHS staff in smaller facilities and organizations often hold dual positions; for example, the same person might be both the infection control and OHS lead. This has often led to a blurring of the two roles, and to infection control becoming eclipsed by OHS responsibilities. As a result, staff will require support to carry out their infection control duties.

We heard suggestions that OHS receive a degree of dedicated support funding, given the day-to-day demands placed on those working in the field, rather than it falling under global budgets where it receives little attention as a low profile area. It was also suggested that minimum standards be set centrally concerning OHS staffing within various workplaces and the training that OHS staff receive.

"Organizational and individual healthcare worker health and wellness priorities need to be identified and supported as key provincial strategic goals."

As stated in one submission to the Panel, "Organizational and individual healthcare worker health and wellness priorities need to be identified and supported as key provincial strategic goals. Benchmarking instruments need to include health and safety leading indicators and outcomes. Health and wellness best practices need to be identified, evaluated and promoted. Ministry funding should support the development/resources required to share and implement these evidence-based best practices."

The Panel urges that a review of current OHS policies, procedures, and resources be undertaken, which can then be utilized as a first step toward determining best practices in OHS, particularly as OHS interfaces with infection control.

Recently, the Ontario Hospital Association sponsored a Safety Group for its hospital members as part of the Workplace Safety Insurance Board's (WSIB) Safety Groups Program. The goals of a Safety Group are to pool resources, allow for mentoring and sharing of best practices, and facilitate a collective approach to workplace health and safety. The WSIB program provides financial incentives for workplaces to develop sustainable health and safety programs, and rewards demonstrated achievements.

Other recommendations to the Panel urged that healthcare managers and administrators become more aware of their OHS obligations, and that compliance with the *Occupational Health and Safety Act* and the *Health Care and Residential Facilities Regulation* [8] be made a top priority. In this regard, the Panel urges the Ontario Hospital Association and other professional organizations to provide assistance, support, and profile to occupational health and safety issues within their membership. At present, compliance with these pieces of legislation is inconsistent, primarily due to a shortage of both OHS staff and inspectors.

Many advocated for improved links between OHS and infection control. Respondents stated that there is a need to "create opportunities for IC and OHS to combine efforts" and that "Reliance on infection control to the exclusion of occupational health and safety appears to be the prevalent approach in health care and, while this approach may protect patients, it is too narrow a focus to protect staff from the hazards of their work."

At the same time, concerns were also raised about marrying OHS and infection control too tightly, and that controlling the spread of infection should be seen as a patient safety issue as much as an OHS issue. Regardless of which approach should be taken, it was clear that there are mutually beneficial opportunities for increased collaboration between OHS and infection control.

The *Occupational Health and Safety Act* mandates the creation of Joint Health and Safety Committees (JHSCs). The Panel heard that infection control practitioners and public health personnel should be used as a resource by JHSCs, with infection control integrated into OHS programs and protocols within health care workplaces. This way, OHS could potentially be used as a compliance monitoring tool for infection control. The JHSC within each facility and institution should also become an active participant in organization and planning around infectious disease emergencies.

Balancing patient care with employee safety: During the SARS outbreak, healthcare staff across the board worked under demanding conditions to provide the necessary patient care. However, the Panel was made aware of a small number of employees who refused to work on the basis of perceived excessive personal risk. We appreciate the need for a mechanism to mediate staff and employer concerns such as these. Under the OHS legislative regime, there is a right to refuse work or to engage in a bilateral works stoppage under certain circumstances. However, the legislation does not contemplate the complex ethical concerns that arise in the situation of a refusal to work by healthcare employees. The Panel has commissioned an ethical opinion on this issue, which will be reflected in the Panel's final report.

Nevertheless, at a basic level, there is a need to balance two independent duties: the duty of a healthcare worker to care for his/her patient, and the duty of the employer and the government to ensure a safe working environment.

Personal protective equipment: The Panel heard that the specific role of OHS in relation to personal protective equipment (PPE) must be enhanced. Currently, a worker who is required to wear PPE must be trained in its proper use and be properly fitted with the equipment. These are legislative responsibilities of employers, which generally fall to OHS departments. OHS should therefore be involved in any decisions concerning the procurement of PPE, to help coordinate the amount and type of supplies required. In some instances during SARS, hospital materials management departments were left to acquire PPE, without consulting OHS, which was ultimately responsible for ensuring that PPE were properly fitted and used.

"Primary care providers were very poorly positioned to deal with this. They had no easy access to personal protective equipment and no source of funds to support this significant change."

Issues concerning PPE were a significant overall component in the submissions made to the Panel. We heard that future steps are required to ensure adequate supplies of relevant PPE for all healthcare workers, including those in primary care and community-based positions. As stated in one submission "Primary care providers were very poorly positioned to deal with this. They had no easy access to personal protective equipment and no source of funds to support this significant change."

Particularly related to N95 masks, the Panel heard that proper fitting should be more readily available and fit-testing activities should be better funded. Many workers wore ill-fitting masks during SARS because they had not been correctly fitted prior to the outbreak due to a shortage of qualified personnel to complete the fit-testing. Others found the masks difficult to wear for long periods, from comfort and functional points of view. As an overlay to the mask fitting dilemma were two questions: first, whether N95 masks were most effective in preventing the transmission of SARS, or whether a higher grade of mask (N97 or N100) was optimal; second, whether a simply surgical mask would have been sufficient, as some evidence is beginning to suggest.

In one respondent's view "Hospital emergency room staff and ICU staff were required to wear personal protective equipment during all working hours. This was very difficult on staff physically, emotionally and psychologically. Sensitivities occurred to N95 products, difficulty breathing, headaches, fatigue, emotional breakdown etc."

In addition, regardless of SARS, it is clear that training concerning the proper use of PPE must be made more available across all healthcare sectors: "The use of personal protective equipment, how to put it on, and how to take it off must be trained and retrained on a regular basis." Some respondents questioned whether full PPE was required in all instances: "Full personal protective equipment (assuming it is actually necessary for a droplet infection such as SARS) is much too onerous to use as a routine."

Finally, further research is needed to determine the efficacy, necessity, comfort, and health effects of using PPE. Based on this, as well as international standards and practices with respect to using PPE, the Ministry should support the continued development of best practice guidelines for PPE, in conjunction with the appropriate expertise.

Psychological and social support: Many respondents urged that the province broaden psychological and social support mechanisms for healthcare workers. OHS frequently rose to the task and filled this role during SARS; however, these efforts stretched OHS staff beyond their capacity.

The Panel recommends that pycho-educational programs be developed to better prepare staff to cope with the psychological consequences of a health emergency such as SARS. In addition, comprehensive psychological support programs are required that include streamlined access to Employee Assistance Programs and also provide support to family members of healthcare workers.

In the event of a future health emergency, initiatives such as help-lines should be rapidly developed and made available to healthcare workers and their families. These were set up by certain facilities and at least one professional organization during SARS. As stated by one respondent in relation to nurses, "Because of its propensity for attacking healthcare providers, SARS introduced the concept of occupational risk to nurses with great vehemence."

"Because of its propensity for attacking healthcare providers, SARS introduced the concept of occupational risk to nurses with great vehemence."

Staffing strategies: SARS shed a spotlight upon a problem that has existed in the health professions, particularly nursing, for the past decade – the use of a high proportion of staff that is employed casually, rather than on a full-time or 'regular part-time' basis. Full-time and 'regular part-time' work usually involves a relatively fixed schedule and an agreed number of hours, while 'casualization' involves the systematic replacement of full-time and part-time staff with staff employed on an ad hoc basis. As stated in one submission to the Panel, "Move towards a much higher ratio of full-time, permanent staff. Part-time/casual staff work at multiple sites, and may contribute to the spread of disease."

The Panel heard that the problem of casualization is most severe in the long-term care and community care sectors, but remains a concern across all segments of health care. Those employed on a casual basis tend to work at multiple sites, raising the specter of healthcare workers transmitting a disease. Although there was no definitive incident of such transmission during SARS, many submissions to the Panel expressed concern that it could easily have happened, and that the risks are too high.

In addition, the Panel was told that the rule of working at one facility only, a rule imposed during SARS, meant that a number of institutions that had high rates of casualization lost much of their staff. The flip side to this was that staff working casually found their hours slashed by the 'one facility' rule. We heard that it is only feasible to limit staff to one facility during an infectious disease outbreak when full-time employment of healthcare workers is maximized. Until that comes to pass, "The focus should be on limiting risk rather than limiting employment."

The Panel received many suggestions that no more than 30% of staff should be casual staff, that full-time positions should be increased, and that the use of agency staff should be limited as much as possible. The Panel has commissioned further research into the causes of and mechanisms to reduce casualization. This will be reflected in our final report. Ultimately, the Panel has concluded that reducing the rate of casualization, regardless of the theoretical impact this may have on infection control, is instrumental in improving the continuity of care of patients, improving workplace satisfaction and loyalty, and building cohesion and core capacity back into the system.

The Panel also recognizes that some healthcare professionals were not used efficiently during SARS; one example is nurse practitioners. Creative staffing models must be developed so that such professionals are used to the full scope of their practice.

Compensation disparities: During SARS, many healthcare workers lost income as a result of being restricted to working in one facility. This problem is tied directly to the issue of casualization noted above. Later on during the outbreak, the province offered income compensation package. However, prior to announcing and implementing the SARS Compassionate Assistance Program for healthcare workers, staff suffered great immediate stress related to loss of income. In addition, several institutions were compelled to use agency staff during SARS because they had lost a large proportion of their regular staff to quarantine, illness, or the one-facility restriction. As well, the Panel has become aware of circumstances in which agency staff were compensated at a substantially higher rate, up to double that paid to regular staff, despite the fact that they were performing the same tasks and working alongside one another.

This experience contains two lessons for the healthcare sector. First, and most obvious, is the need for ongoing efforts to ensure a stable and adequate supply of healthcare professionals. Second, is the need for organizational and provincial contingency plans to address issues of redeployment and remuneration *in advance* of an outbreak.

Deployment during a crisis: The Panel heard that there was confusion concerning how to effectively deploy the limited human resources available during SARS. Many facilities were overwhelmed due to staff being off sick or quarantined, and required a strategy whereby they could cope by drawing on the pool of existing healthy staff. Certain facilities implemented viable strategies during SARS; however, many called for a standardized process as part of overall contingency planning, or, at a bare minimum, guidelines concerning emergency deployment of staff.

One new initiative, developed by the Registered Nurses Association of Ontario (RNAO) in collaboration with the Registered Practical Nurses Association of Ontario (RPNAO), is known as VIANurse (Voluntarily Immediately Available Nurse). VIANurse is an electronic registry, maintained confidentially on the RNAO's website, of RNs and RPNs who have indicated their availability to be deployed on a voluntary basis to an Ontario healthcare facility that the Ministry has designated as being on emergency status. On the basis of a simulation carried out in October 2003, it appears that VIANurse will be a useful tool in future emergency deployment of RNs and RPNs.

The Panel learned about additional short-term proposals that could be employed during an outbreak which involved setting up facility-based registries or logs of staff who work at various sites, including physicians with privileges at more than one institution and residents. A number of institutions implemented similar strategies during SARS, which may have aided with staffing requirements and/or reduced the potential transmission risk between sites: "Our facility now keeps a log of the other healthcare facilities that our staff work at so in the event of another outbreak, we know who works where." Many stressed that given the highly mobile nature of healthcare workers, a mechanism should be in place to track secondary places of employment during an infectious disease outbreak.

Other proposals heard by the Panel related to rapid but limited licensing of healthcare professionals. This could apply to out-of-province professionals wishing to assist during a crisis, who would be licensed on a conditional basis. Such licenses could be restricted by location, time of validity, and practice area. The Panel is aware of a number of processes to accomplish licensure, which were created in response to previous emergencies, including SARS. However, these processes must be put in place by *all* regulatory colleges and be consolidated so that they may be readily accessed by healthcare facilities and organizations when needed. This consolidation could be accomplished by the Federation of Health Regulatory Colleges of Ontario together with relevant healthcare providers. This could also apply to residents who have not completed their full training, who could be licensed to work extra on-call shifts.

Workforce protection: Within healthcare settings, there is often an expectation that employees attend work despite the fact that they may be ill. For instance, some institutions reward employees for maintaining near perfect attendance; yet this may result in staff transmitting infectious diseases to others. Sick time tends to be very high for nurses compared to other occupations, most likely due to the difficult nature of the work performed and the level of burnout in the profession. As stated by one professional association, "A full review of Health Human Resource policies should occur in light of our experience with SARS. Practices such as 'perfect attendance' awards must be re-evaluated. This is going to be quite a cultural change for hospitals, where historically employees came to work regardless of their personal health." Such practices can undermine OHS principles, and place both co-workers and patient populations within facilities and institutions at risk of possible infection by healthcare workers.

The Panel heard that management within healthcare facilities and organizations need to shift the messages they often send to staff in this regard. In addition, OHS programs could incorporate staff education about the hazards of coming to work while ill.

We also heard some suggestions that influenza vaccinations be made mandatory for all healthcare workers, while others encouraged greater compliance with existing influenza vaccination campaigns. It would help to intensify efforts at promoting vaccination campaigns in all healthcare workplaces. This could reduce the confounding symptoms of influenza relative to other febrile respiratory illnesses such as SARS, and reduce the transmission of influenza, which itself takes a large yearly toll on employees as well as patients.

Residents and students: Residents are medical graduates who are completing post-graduate training necessary to become a family physician or a specialist. Residents are the frontline physicians in institutions that are also teaching facilities, and as such are a vital and integral part of the functioning of those institutions. Residents play a key role in assessing and managing patients under the purview of staff physicians.

The Panel heard that residents must have access to the same benefits and services afforded to other employees of healthcare facilities and organizations, including access to personal protective equipment and education on infection control. As well, concerns were raised about the possibility of residency training being interrupted as a result of quarantine or being removed from certain healthcare settings during an outbreak. Should this occur, residents might be prevented from writing licensing examinations and thereby delayed from entering into the physician workforce. It was recommended that policies be developed to minimize or avoid disrupting the training of residents during an infectious disease emergency.

We also heard concerns about the effect that SARS had on students in healthcare education programs. Many of these students are present in healthcare facilities on a daily basis, engaged in clinical training that is crucial to their ultimate ability to work in the healthcare field. Some students were delayed in their educational programs because they were removed from clinical placements during SARS. Recommendations were made to the Panel that methods should be developed so as not to exclude students entirely during an infectious disease outbreak. These could include permitting students to remain in the clinical setting during an infectious disease outbreak based on their level of training and experience, and ensuring that all students receive basic infection control training before starting any clinical placement. As stated by one respondent, "For healthcare providers whose educational program includes a clinical practice component, these concepts should have been covered before the student ever enters the health care environment." This concept will be explored more fully in our final report.

Recommendations

Enrollment

42. The Ministry, together with the Ministry of Training, Colleges and Universities and professional bodies, should continue to support new initiatives to increase the enrollment numbers of key health professions, including medicine, nursing, and respiratory therapy. In addition to work already underway, attention should be given to enhancing training opportunities in epidemiology, medical microbiology, occupational health and safety, community medicine, critical care, emergency and public health. Plans for increased training capacity in these key areas should be in place for the 2005/2006 academic year and reported publicly.

Staffing Strategies

43. The Ministry must immediately fund a minimum of two additional Medical Microbiologist positions for the Ontario Public Health Laboratory.

44. The Ministry, in collaboration with professional regulatory colleges and professional associations, should begin to develop new models for the efficient utilization of existing health human resources during a health emergency. As part of this process, consideration should be given to creative staffing models, and using professionals to their full scope of practice.

45. The Ministry should continue to establish sustainable employment strategies for nurses and other healthcare workers to increase the availability of full-time employment. Progress reports should be issued on an annual basis with a final goal of greater than 70% full-time employment across all healthcare sectors by April 1, 2005.

Occupational Health and Safety

46. The Ministry, together with the Ministry of Labour, should initiate a joint review of current Occupational Health and Safety (OHS) policies, procedures, and resources in the healthcare sector. This should be completed by June 30, 2004.

    Informed by the results of this review, the Ministry, the Ministry of Labour, healthcare providers, and relevant professional organizations should look to developing best practices in OHS, with a view toward defining the role of OHS during an infectious disease outbreak and the most appropriate interface between OHS and infection control programs.

47. The Ministry, together with the Ministry of Labour and professional associations, should support the ongoing development of best practices for the use of personal protective equipment by December 31, 2004. The Ministry should also ensure that, in conjunction with healthcare provider organizations, adequate vehicles are in place to educate appropriate groups of healthcare workers as to the proper use and the associated evidence behind such uses of personal protective equipment. In addition, Ontario should support both public and private sector research initiatives with respect to the design, efficacy, and adverse effects of personal protective equipment.

Psychological support

48. The Ministry, in collaboration with professional associations and relevant experts, should develop a plan for the development and use of psycho-educational programs in emergency preparedness training. These programs should address the following:
    a. Preparing staff to deal with the consequences of emergency situations, including anxiety and depression.
    b. Developing coping skills.

    The programs should be developed by summer, 2004.

49. The Ministry, in collaboration with professional associations and healthcare employers, should ensure the availability of psychological support programs for healthcare workers as part of a robust plan for emergency management. These programs should:

    a. support all frontline workers
    b. allow clear access to Employee Assistance Programs and other resources such as psychiatry
    c. deal with issues of isolation and stigmatization
    d. contain proactive approaches to manage work fatigue and workload stress.

    Coordinated planning in this area should be initiated by February 2004.

Compensation

50. The Ministry should formalize, as part of its contingency planning for health emergency plans, mechanisms to quickly put into place programs, such as the SARS Compassionate Assistance Compensation Program for Healthcare Workers, to provide compensation for income lost as a result of being unable to work while ill, quarantined, or restricted to one facility as the result of a health emergency.

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8. *Health Care and Residential Facilities Regulation*, Ontario Regulation 67/93, as amended.

Conclusion

Conclusion

> *Finally, SARS brought us together in ways we had never before experienced. The control and coordination of information, the development of care protocols and the overall management of this public health crisis was the direct results of close collaboration among our senior leadership teams, medical chiefs of staff, clinicians, and academics. Our hospital experience with SARS helped us to see the strengths we have in our dedicated and committed team of professionals and created a sense of teamwork surpassing any previous experience. On an individual basis, in a situation without usual communication means, social isolation, fear for safety of loved ones, ambiguity of directions - we saw strength and compassion, resilience and sensitivity, that characterizes the very best.*

SARS was a public health emergency of immense proportions. And we were all unprepared. What we have heard tells us unequivocally that now is the time for change. The revitalization of our public health system in Ontario must be a top priority if we wish to learn from the past and prepare for the future; and we must do this in conjunction with national efforts. Ultimately, if we are to be successful, the impetus for change must be as strong and powerful as the collective commitment to overcoming the outbreak.

The Panel acknowledges that the revitalization of our public health system is a formidable task and that there are numerous obstacles ahead. This is particularly so when the day-to-day business of delivering basic healthcare services is in and of itself, an all-consuming challenge.

In moving forward, we believe that it is important to recognize and build on our accomplishments. Those within the system responded heroically, often jeopardizing their personal safety to care for others. Time and time again, individuals and organizations demonstrated their extraordinary commitment to our healthcare system and to colleagues.

The Panel believes that as we begin to build a better system for the future, we need to remember and honour these examples of courage and dedication.

Developing an effective, rigorous system to respond to infectious disease outbreaks will take time and will necessitate an investment of resources, patience, and cooperation. But it is essential. Improving our collective capacity to deal with emergencies, such as SARS, is a collective debt we owe to those who died from the disease, to those who lost loved ones, and to the healthcare providers who valiantly dealt with the disease. And improving our capacity to handle health emergencies is a down payment on the future – it is an investment for those who fight the next major health emergency, that they may have access to some of the tools, supports, and processes that we lacked during Ontario's first SARS outbreak. This Report is intended to be a modest first step in that direction.

During this first phase of work, the Panel heard from many of those affected by SARS. This input has given us the necessary building blocks to design a more robust system. We have the beginnings of a roadmap, telling us where we need to go and what we absolutely must do over the short term to ensure that Ontario is prepared for the next infectious disease outbreak.

The recommendations in this Report are only the beginning of a process. If we are to effect real change, they must be acted upon. Formal structures need to be put in place to implement these recommendations and to ensure that all Ontarians learn about what has been done so that we are prepared for the future. SARS was the lightning rod, the call to action, and the time for action is now.

Much work remains to be done. Throughout this Report we have highlighted a number of deficiencies and attempted to provide some immediate solutions. However, some of the issues raised by SARS are necessarily complex, requiring extensive research and analysis, as well as discussion with members of the healthcare community. For these areas of inquiry, the Panel believes that a thoughtful review is necessary if we are to develop real and lasting solutions.

Accordingly, the Panel will be revisiting a number of issues that have been discussed in this Report, such as health human resources, risk communications, facility design and visitor policies, and will provide a more comprehensive analysis and ethical perspectives, where appropriate.

The Panel will also be looking to provide additional detail with respect to the organization and role of the proposed Ontario Health Protection and Promotion Agency and the future needs of the public health laboratories in Ontario.

We are also deeply aware of the difficulties imposed by quarantine and of the many other hardships felt by individuals exposed to SARS. The Panel has heard from patients, family members, and members of the public about their experiences and will be discussing these further in our final report.

The Panel looks forward to this next phase of work and to the continued support of those who have given so generously of their time in sharing their perspectives on SARS and advice for the future.

Process Recommendations

To ensure accountability and to facilitate a coordinated approach to implementing this Report, the Panel offers the following recommendations:

51. The Ministry of Health and Long-Term Care should establish a single coordinating body to oversee implementation of the recommendations contained within this report, within the stipulated timelines.

52. The work of this coordinating body should be guided and supported by a multidisciplinary Expert Advisory Group with representation from healthcare facilities and organizations, healthcare professionals and their associations, and the scientific community.

53. In recognition of those affected by SARS and to ensure accountability to the public with respect to the implementation of these recommendations, the Minister of Health and Long-Term Care should table a progress report in the Legislature no later than December 2004.

Appendices

Appendix 1: Call for Submissions

Expert Panel on SARS and Infectious Disease Control

Ontario 2003

Submission Document

Please submit completed questionnaire electronically to the following address:

ExpertPanel@moh.gov.on.ca

Or by mail to:

Expert Panel Secretariat
8th Floor, 415 Yonge Street,
Toronto, Ontario, M5b 2E7

The closing date for submissions is **October 6, 2003**

Introduction

Ontario's experience in responding to and managing the SARS outbreak has been a remarkable and tremendously stressful period in Ontario history. The SARS outbreak marked the first ever declaration of a Provincial Emergency and has cast a national and international spotlight on the issues of emergency preparedness and infectious disease control.

The Expert Panel on Infectious Disease Control has been established to provide advice to the Minister of Health and Long-Term Care on how best to begin to understand the lessons learned from the SARS outbreak and what forward looking measures are required to strengthen the system capacity to respond to infectious disease outbreaks.

We are inviting individuals and organizations to submit their input on this form for the purpose of better identifying and considering the themes and commonalities across submissions. While we encourage all submitters to utilize this format, organizations and individuals wishing to submit supplementary materials should feel free to do so.

Please Note: The Expert Panel on SARS and Infectious Disease Control is not charged with investigating individual actions regarding the SARS outbreak and respondents are urged to focus their materials on policy lessons learned and health system approaches that may need to be considered in the future.

There are three parts to this questionnaire; please complete them as follows:

Part A - General Section:	For completion by all respondents
Part B - Sector Specific:	Complete only those sections relevant to you or your organization
Part C - Open Space:	Complete with any additional comments, observations and recommendations

Part A (All Respondents)

Section 1: Emergency Direction

1. How effective was the overall direction provided centrally to assist in managing the SARS outbreak? Were the lines of authority clear, if not, what approaches must be considered in the future?
2. What factors were most successful in the response and should be retained or enhanced, and what factors were weak and require re-examination?
3. To what extent did your organization have in place contingency plans to address emergency situations? Were these contingency plans used?

Section 2: Information to healthcare providers

1. What additional practical supports/information would have assisted you or your organization in responding more effectively to SARS?
2. Understanding that what was known about SARS changed dramatically over the period of the outbreak; to what extent did the right information get to the right people at the right time?
3. What approaches should be considered to ensure timely information is provided to assist healthcare providers in managing any future outbreak?

Section 3: Information to the public

1. Looking back, how effective were health authorities (public health, Ontario MOHLTC, Health Canada) in getting information through to the general public? What measures worked and were effective, what different approaches should be used in a future emergency?
2. Were there parts of the population in the GTA/Ontario that were not adequately reached by the information provided in Ontario?
3. Were healthcare organizations themselves adequately equipped to communicate with the public? Based on your experience with SARS what approaches would you or your organization take differently in communicating with the public?

Section 4: Legislative and regulatory issues

1. Were there occasions during which you or your organization lacked the legal or regulatory authority to effectively respond to an aspect of managing the outbreak?

2. What legislative or regulatory barriers did you or your organization encounter or perceive in attempting to respond to SARS?

3. During the outbreak many organizations grappled with the issue of patient privacy and how to balance this issue with the need to share personal information – did you or your organization experience significant challenges in this regard?

4. Emergency powers – different jurisdictions have taken different approaches to Emergency powers legislation. Are there additional legislative or regulatory measures that should be considered to enhance emergency management?

Section 5: Health human resources

1. SARS highlighted critical longer-term challenges the system faces in terms of health human resources. In order to enhance our infection control capacity – what priority long-term measures should Ontario set in motion to strengthen health human resources?

2. What creative short-term measures can be taken to enhance health human resource capability in infectious disease control?

3. Are there concrete practical steps that healthcare workplaces can start to take now to enhance the measures and procedures in place to enhance the safety of healthcare providers?

4. Are there any Health Human resource best practices that evolved out of the SARS experience that should be highlighted and more broadly adopted?

5. To what extent can we better ensure that new workers entering the health-care system are effectively equipped and supported in practicing optimal infection control measures?

Part B (complete relevant sections only)

Section 1: Public Health

1. What has SARS highlighted most as priorities for change in the way in which we approach public health in the future?

2. How has the relationship between public health, acute care and other sectors been changed by the experience of SARS – what has to happen in the future to strengthen a shared approach to infectious disease management?

3. Other jurisdictions, including most recently the UK, have moved to focus much more intensively on "Health Protection." To what extent would this sort of public health re-focusing exercise make sense in Ontario or Canada?

4. What were the critical infrastructure barriers that were experienced in managing the SARS outbreak?

5. What needs to be in place across Ontario to ensure effective deployment of resources between health units in emergency situations?

6. In the aftermath of SARS what future approaches to contingency planning need to be considered at the provincial or local level?

Section 2: Hospitals

1. To what extent in future large outbreaks should a "designated facility" or "alliance" type model be used to manage cases– does this model make sense?

2. Should Ontario create a dedicated "infectious diseases centre of excellence" to serve as the facility for such outbreaks?

3. How effective was the use of the Hospital Category system in controlling/preventing inter-facility spread?

4. What was your experience with the Provincial Transfer Authorisation Centre?

5. Some jurisdictions imposed a one hospital only rule for all healthcare providers during the SARS outbreak – would this have been feasible in Ontario? How do we limit the risk of cross facility transmission in the immediate future and in the longer term?

6. What did the SARS outbreak reveal most to you about how specialized health services (e.g. Trauma) in Ontario are structured?

7. What has the experience of SARS highlighted regarding possible changes that are required in emergency room use, staffing or design?

8. The move to "code orange" was a critical juncture in the fight against SARS however, the resultant impact on services was large – what were the pros and cons of this approach, are there better models that could be used in the future?

9. SARS has thrown a spotlight on the issued of Nosocomial infections in Ontario what models exist nationally or internationally that could help inform an effective response to overall nosocomial infection rates.

Section 3: Primary Care and Community Health agencies

1. How effectively were primary care/community based healthcare providers/organizations positioned to deal with a community based outbreak?

2. What contingency planning had you or your organization developed to respond to community outbreaks?

3. What mechanisms could be created to strengthen Primary Care preparedness for outbreak response/emergency response?

4. What are the most effective vehicles to ensure that early warnings of emerging diseases reach the hands of Primary Care and Community health agencies?

5. What practical tools can be developed to support primary healthcare providers/community health agencies in optimizing infection control practices in the day to day provision of care?

6. How can outbreak surveillance in the primary care/community health sector be enhanced?

Section 4: Emergency Health Services

1. Was EMS adequately equipped to respond to the SARS outbreak?
2. What key lessons have been learned by you or your organization regarding the link between the emergency health sector and acute care? What were the main barriers encountered with acute care?
3. What was your experience with the transfer authorization system, is this a model that should be considered for use in future outbreaks – how could its functioning be improved?
4. What approaches to contingency planning should be considered by EMS in aftermath of the SARS outbreak?
5. What tools or supports would have better equipped you or your organization in responding to the SARS outbreak?
6. In the aftermath of SARS what are the key changes that you or your organization have identified that need to be put in place to ensure optimal response in cases of emergency ?

Part C: Other Observations and Recommendations

Part C: Proposing solutions

Appendix 2: Perspectives from the Field (Fall 2003)

The Panel undertook several key initiatives to hear from individuals and organizations about their experiences during SARS, the lessons they learned, and their advice for Ontario in preparing and responding to any future infectious disease outbreaks.

The Panel sought input through the initiatives described below.

I. Call for Submissions

In September 2003, a Call for Submissions questionnaire (see Appendix X) was sent to more than 1,200 groups and individuals across the health sector to obtain their input and advice on lessons learned and future direction.

The Panel received more than 265 that can be characterized as follows:

Total responses by organization type:

Acute care hospital	92
Community Care Access Centre	15
Community Health Centre	7
District Health Council	2
Emergency Health Services	12
Independent physician	2
Long-term care facility	79
Medical laboratory	2
Municipality	2
Non-acute care hospital	10
Nursing	3
Professional association	9
Other association	10
Public Health Unit	18
Unknown	2
Total # responses	**265**

Total responses by profession:

Chief Executive Officer/Executive Director	30
Chief of Staff	2
Director of Occupational Health & Safety and Infection Control	6
Emergency Health Services	2
Frontline staff	3
Infection control practitioner	15
Manager	43
Medical Officer of Health	4
Nurse	9
Nurse Manager	12
Physician	18
Vice President or Director of Nursing	25
Unknown	96

Total responses by region:

Central-East	24
Central-South	24
Central-Toronto	46
Central-West	24
East	42
North	32
South-West	31
Unknown	42

Total responses in GTA:

GTA	66
Outside GTA	157
Unknown	42

These submissions were analyzed based on key themes.

II After-Action Report on the Healthcare Sector's Response to SARS (December 2, 2003)

The Expert Panel retained an external consultant to conduct individual interviews and focus groups comprised of individuals who were involved in the response to SARS. Approximately 150 interviews and 12 focus groups were held between September 22nd and November 26th, 2003.

One-on-one interviews were conducted with individuals in the following sectors:

- Acute care hospitals
- Non-acute care facilities
- Long-term care facilities
- Outpatient facilities
- Primary care practitioners and clinics
- Community Health Centres
- Community Care Access Centres
- Public Health Units
- Emergency Medical Services
- Academic institutions
- Ontario SARS Scientific Advisory Committee
- Public Health Branch
- Provincial Operations Centre/SARS Operations Centre

In addition to these interviews, focus groups were held with the following groups:

- Nurses
- Respiratory therapists
- Emergency room physicians
- Infection control practitioners
- CCAC representatives
- Outpatient clinics
- Public Health Units

III. The Effect of SARS on Patients and Families

The Expert Panel retained an external consultant to conduct one-on-one interviews and focus groups with patients and their families who were directly impacted by SARS in some manner.

IV. Healthcare Provider Reference Panel

The Healthcare Provider Reference Panel (HPR Panel) was created in October 2003 to advise and assist the Expert Panel. The goals for the HPR Panel are threefold:

1. Provide a forum for healthcare providers to communicate their experiences relating to the SARS response;
2. Provide the Panel with systemic and operational lessons learned from a provider perspective; and
3. Provide feedback to the Expert Panel on specific matters that require a system-wide perspective.

The HPR Panel is comprised of representatives from the following healthcare provider associations and organizations:

- Ontario Association of Local Public Health Associations
- Association of Ontario Health Centres
- Ontario Hospital Association
- Ontario Medical Association
- Registered Nurses Association of Ontario
- Registered Practical Nurses Association of Ontario
- Ontario Nurses' Association
- Ontario Health Providers Alliance
- Community Care Access Centres
- Ontario Public Health Association
- Ontario Long-Term Care Association
- Ontario Association of Non-Profit Homes & Services for Seniors
- Respiratory Therapy Society of Ontario
- Ontario Association of Medical Laboratories
- Professional Association of Interns and Residents of Ontario (PAIRO)

V. Joint Working Sessions with Public Health and Acute Care

Joint working sessions were held to establish areas of critical consensus between representatives from the public health sector and from a selection of GTA hospitals. The objective was to hold a number of facilitated half-day working sessions focused very clearly on future areas for collaborative work based on shared priorities.

More than 65 individuals participated in three joint working sessions held in the following regions:

1) York (October 12, 2003)
2) Peel & Simcoe (October 20, 2003)
3) Toronto (October 25, 2003)

The outcomes sought for each of the sessions included:

- building on local experience, finding the common interests between Public Health and acute care hospitals
- making recommendations to the Expert Panel about the interface between Public Health and acute care hospitals
- discovering ways to work together on a regional basis
- exploring possibilities for ongoing local and regional dialogue between Public Health and acute care hospitals

Glossary of Acronyms and Abbreviations

Agency	Ontario Health Protection and Promotion Agency
ALC	Alternate Level of Care
Alliance	Interim Healthcare Alliance
APIC	Association for Professionals in Infection Control and Epidemiology, Inc.
CBIC	Certification Board for Infection Control
CCAC	Community Care Access Centre
CCHSA	Canadian Council on Health Services Accreditation
CDC	Centers for Disease Control and Prevention
CEPR	Centre for Emergency Preparedness and Response
CHA	Canadian Healthcare Association
CHC	Community Health Centre
CHICA	Community and Hospital Infection Control Association
CIDS	Canadian Infectious Disease Society
CIHR	Canadian Institutes of Health Research
CIPHS Collaborative	Collaborative Canadian Integrated Public Health Surveillance Collaborative
CMOH	Chief Medical Officer of Health
CWHPIN	Central West Health Planning Information Network
EHS	Emergency Health Services
EMO	Emergency Management Ontario
Epi-Centre	Centralized Epidemiologic Unit
ePP	e-Physician Project

FIPPA	Freedom of Information and Protection of Privacy Act
F/P/T	Federal/Provincial/Territorial
GTA	Greater Toronto Area
HERTs	Health Emergency Response Teams
HHR	Health Human Resources
HPPA	Health Protection and Promotion Act
HRDC	Human Resources Development Canada
IC	Infection Control
ICES	Institute for Clinical Evaluative Sciences
ICP	Infection Control Practitioner
iPHIS	Integrated Public Health Information System
IT	Information Technology
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JHSC	Joint Health and Safety Committees
Krever Commission	Commission of Inquiry on the Blood System in Canada
LTC	Long-Term Care [facility]
MFIPPA	Municipal Freedom of Information and Protection of Privacy Act
Ministry	Ministry of Health and Long-Term Care
MOH	Medical Officer of Health
MSRA	Methicillin-resistant *Staphylococcus aureus*
MTCU	Ministry of Training, Colleges and Universities
National Advisory Committee	National Advisory Committee on SARS and Public Health Committee

NESS	National Emergency Services Stockpile
NORTH Network	Northern Ontario Remote Telecommunications Health Network
OHEP	Office of Health Emergency Preparedness
OHA	Ontario Hospital Association
OHIP	Ontario Health Insurance Plan
OHS	Occupational Health and Safety
OPHL	Ontario Public Health Laboratory
OMA	Ontario Medical Association
OSSAC	Ontario SARS Scientific Advisory Committee
Panel	Expert Panel on SARS and Infectious Disease Control
PPE	Personal Protective Equipment
PHAN	Public Health Alert Network
PHB	Public Health Branch
PHRED	Public Health Research, Education and Development
POC	Provincial Operations Centre
PTAC	Patient Transfer Authorization Centre
RDIS	Reportable Disease Information System
RN	Registered Nurse
RNAO	Registered Nurses Association of Ontario
RPN	Registered Practical Nurse
RPNAO	Registered Practical Nurses Association of Ontario
SARS	Severe Acute Respiratory Syndrome
Senate Committee	Standing Senate Committee on Social Affairs, Science and Technology
SOC	SARS Operations Centre

Executive Summary and Recommendations

Introduction

Chapter One: Public Health Models

Chapter Two: Infection Control

Chapter Three: Emergency Preparedness

Chapter Four: Communications

Chapter Five: Surveillance

Chapter Six: Health Human Resources

Conclusion

Appendices

TPH	Toronto Public Health
UAP	Underserviced Area Program
VIA Nurse	Voluntarily Immediately Available Nurse
VON	Victorian Order of Nurses
VRE	Vancomycin-resistant enterococci
Walkerton Inquiry	Walkerton Commission of Inquiry
WHO	World Health Organization
WHMIS	Workplace Hazardous Materials Information System